REVISION OF THE AUSTRALIAN AND NEW ZEALAND TERTIARY AND RECENT SPECIES OF THE FAMILY NASSARIIDAE (MOLLUSCA: GASTROPODA)

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Abstract. Eighty taxa proposed either in the family Nassariidae or subsequently referred to this family, have been elucidated. In this account 13 Recent and 8 Tertiary species from Australia, 2 species from the Austral-Neozelanic region and 1 Recent and 1 Tertiary species of Nassariidae from New Zealand are recognized as valid. *Nassarius (Gussonea)wilsoni* (Ludbrook, 1978) is a secondary homonym of *Nassa wilsoni* C.B. Adams, 1852, and will need to be replaced.

Species of Nassariidae are not particularly numerous in the temperate waters of the Austral-Neozelanic region and only 16 species belonging to 8 genus-groups live in that area. This number represents only 7-8% of all known living species. A fossil record of 9 species shows that there has been a slight increase in the number of species since the Late Tertiary. From the 80 names proposed for the group, 4 names belong to non-nassarid taxa, 39 are synonyms, 12 names are applicable to widely distributed tropical Indo-Pacific species and 25 are considered to belong to recognized species restricted to the Austral-Neozelanic region. Australian Recent and Tertiary species outnumber the rather impoverished nassarid fauna of New Zealand (Table 1).

Table 1. Number of Recent and Tertiary species of Nassariidae in Australia and New Zealand.

	Australia Recent	Australia & N.Z. Recent	N.Z. Recent	Australia Tertiary	N.Z. Tertiary
(Alectrion) spp.	2	1	1	—	—
(Plicarcularia) spp.	2	—	—	—	—
(Niotha) spp.	2	—	—	4	—
(Zeuxis) spp.	3	—	—	2	—
(Gussonea) spp.	—	—	—	1	—
(Hima) spp.	1	—	—	1	1
(Cryptonassarius) spp.	—	1	—	—	—
Cyllene spp.	3	—	—	—	—
Total	13	2	1	8	1

The first record of Nassariidae in the Austral-Neozelanic region was the appearance of *Nassarius (Hima) tatei tatei* (Tenison-Woods,1879) and *N.(H.) tatei socialis* (Hutton,1886) during the lower Miocene in both Australia and New Zealand at a time when species of *Hima* were numerous and flourishing in Europe. Although in New Zealand *Hima* species became extinct, two species still survive in Australian waters. Species of

Niotha, Zeuxis and *Plicarcularia* made their appearance during the Lower Pliocene and *Gussonea* and *Alectrion* appeared during Pleistocene times. Species of *Cryptonassarius* and *Cyllene* have not been recorded in fossil form from either Australia or New Zealand.

Drawings of radulae of Australian and New Zealand species of Nassariidae have been given by Ponder (1968) and Cernohorsky (1972).

List of recognized species of Australian - New Zealand Recent and Tertiary Nassariidae (asterisk denotes fossil species)

Nassarius (Alectrion) aoteanus Finlay,1927. Recent, New Zealand.
N. (A.) spiratus (A.Adams,1852). Recent, E.Australia-Norfolk I-Lord Howe I-Kermadec I-New Zealand.
N (A.) glans particeps (Hedley, 1915). Recent, Southern Australia
N. (A.) psila (Watson,1882). Recent, Torres St., Nth.Australia.
N. (Plicarcularia) burchardi (Dunker in Philippi,1849). Recent, Southern Australia.
N. (P.) jonasii (Dunker,1846). Recent, Southern Australia.
N. (Niotha) pauperatus (Lamarck,1822). Recent, Southern Australia.
N. (N.) nigellus (Reeve,1854). Recent, East and Southern Australia.
* *N. (N.) sublirellus* (Tate, 1888). L.Pliocene, S.E. Australia.
* *N. (N.) crassigranosus* (Tate,1888). L.Pliocene, S.E. Australia.
* *N. (N.) nuttalli* (Ludbrook,1978). E.Pleistocene, S.W. Australia.
* *N. (N.)* sp. Pleistocene, S.W. Australia.
N. (Zeuxis) dorsatus (Roeding,1798). Recent, Northern Australia and southern coast of Papua New Guinea.
N. (Z.) pyrrhus (Menke,1843). Recent, Southern Australia.
* *N. (Z.) subcopiosus* (Ludbrook,1958). Pliocene-Pleistocene, Southern Australia.
* *N. (Z.) spiraliscabrus* (Chapman & Gabriel,1914). Pliocene, S.E. Australia.
N. (Z.) fraudator Cernohorsky,1980. Recent, Northern Australia and southern coast of Papua New Guinea.
* *N. (Gussonea) wilsoni* (Ludbrook,1978) [nom.praeocc.] L.Pleistocene, S.W. Australia.
* N. *(Hima) tatei tatei* (Tenison-Woods,1879). L. Miocene - U. Pliocene, Southern Australia.
* *N. (H.) tatei socialis* (Hutton,1886). Miocene, New Zealand.
N. (H.) mobilis (Hedley & May,1908). Recent, S.E. Australia.
N. (Cryptonassarius) ephamillus (Watson, 1882). Recent, Australia and New Zealand.
Cyllene lactea Adams & Angas,1864. Recent, S.E. Australia.
C.royana (Iredale,1924). Recent, S.E. Australia.
C.sulcata Sowerby,1859. Recent, West Australia.

The following abbreviations have been adopted in this paper: AIM = Auckland Institute and Museum, Auckland; AMS = Australian Museum, Sydney; ANSP = Academy of Natural Sciences, Philadelphia; BMNH = British Museum (Natural History), London; MCZ = Museum of Comparative Zoology, Harvard University; MHNG = Muséum d'Histoire Naturelle, Geneva; NMNZ = National Museum of New Zealand, Wellington; NMV = National Museum of Victoria, Melbourne; NZGS = New Zealand Geological Survey, Lower Hutt; OMD = Otago Museum, Dunedin; SAM = South Australian Museum, Adelaide; TMAG = Tasmanian Museum and Art Gallery, Hobart; USNM = National Museum of Natural History, Smithsonian Institution, Washington; WAM = Western Australian Museum, Perth; ZMC = University Zoological Museum, Copenhagen; ZMHU = Zoological Museum, Humboldt University, Berlin.

The two dimensions given in the text represent the length x width of the specimens expressed in "mm". The single measurement cited in the explanations to figures represents the length of the specimen.

Order **NEOGASTROPODA**

Superfamily BUCCINACEA Rafinesque, 1815

Family NASSARIIDAE Iredale, 1916

Subfamily NASSARIINAE Iredale, 1916

(A decision on the validity of the family-group name is pending with the International Commission on Zoological Nomenclature No. Z.N. (S.) 1887).

Genus **Nassarius** Duméril, 1806

Subgenus **Alectrion** Montfort, 1810

Alectrion Montfort, 1810, Conch.Syst. 2:566. Type species by OD *A.papillosus* = *Buccinum papillosum* Linnaeus, 1758. Recent, Indo-Pacific.
1827. *Alectryon* Berthold in Latreille, Nat.Fam.Thierr. pp.187,564 (*nom.null.*).

Species of the subgenus *Alectrion* differ from *Nassarius s.str.* in its usually thinner and less strongly sculptured shell, a smaller and more constricted columellar callus, edentulous columella and smooth or finely lirate aperture.

GEOGRAPHICAL DISTRIBUTION. Tropical and temperate Indo-Pacific.

Only one Recent endemic species is known from New Zealand, 1 Recent species lives in the Austral-Neozelanic region and 2 Recent species are endemic to Australia.

Nassarius (Alectrion) aoteanus Finlay, 1927 (Figs. 1,2)

1915. *Arcularia coronata* var. E.A.Smith, Brit.Ant.(Terra Nova) Exp.Zool. 2:85,pl.1,fig.28 (non *Buccinum coronatum* Bruguière,1789 = *Nassarius).*
1927. *Nassarius aoteanus* Finlay, Trans.Proc.N.Z.Inst. 57:419 (nom.subst. pro *Arcularia coronata* E.A.Smith,1915); 1952 Powell, Rec.Auckland Inst. Mus. 4:182; 1966 Fleming, N.Z.Dept.Sci.Ind.Res.Bull. No.173:63; 1966 Beu, Trans.R.Soc.N.Z.,Geol. 4(9):180.
1968. *Nassarius(Alectrion)aoteanus* Finlay, Ponder,Rec.Dominion Mus.6:41, figs.13,14 (radula & operculum); 1972 Cernohorsky, Rec.Auckland Inst. Mus.9:183,fig.149 (shell),fig.156-159 (radula); 1979 Powell, New Zealand Moll. p.204,pl.43,figs.1,2.

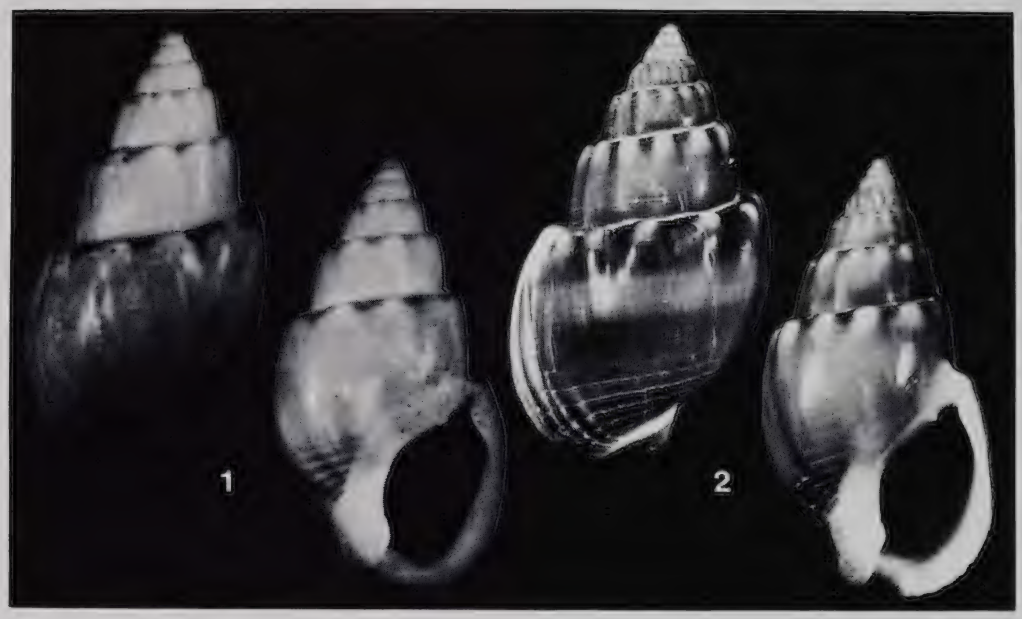
Shell up to 37.0 mm in length, sutures tabulated, protoconch with 3-3¼ finely keeled embryonic whorls, first 3 post-embryonic whorls with axial ribs and fine spiral grooves, grooves becoming obsolete on last 2 whorls, and if present, confined to sutures; axial ribs on last 2 whorls most prominent at sutures where they become coronate and weaken towards the base. Base of shell with *c.* 6 spiral grooves, back of outer lip thickened by 2-3 crowded axial ribs. Columellar callus partly overlapping on to body whorl, slightly thinner and glazed above parietal wall, columella smooth apart from a parietal denticle, outer lip edentulous, aperture smooth; in mature individuals edge of outer lip has a few, small and blunt denticles. Tan to brown in colour, ornamented with 1-2 faint, broad and darker brown bands on the body whorl and dark brown spots between the sutural coronations, columellar callus and edge of outer lip white, interior of aperture brown. Operculum translucent light brown, margins either simple or serrated on one or both sides.

Rachidians of radula with 13-14 denticles, small oval accessory plate present, lateral teeth bicuspid, inward pointing cutting edge of the broad cusp either simple or minutely denticulate.

TYPE LOCALITY. Near North Cape, New Zealand, 11-20 fathoms (20-37 m).

DISTRIBUTION. Confined to the N.E. coast of the North Island of New Zealand, from Doubtless Bay to Ranfurly Bank, East Cape. From 11-275 m, in sandy mud.

Type specimens. The holotype of *N.(A.)aoteanus* is in the BMNH No. 1915.4.18.244., dimensions 27.1 x 14.8 mm (Fig. 1).



Figs. 1,2. *Nassarius(Alectrion)aoteanus* Finlay. 1. Holotype BMNH No. 1915.4.18.244.; 27.1 mm. 2. Specimen from Bergen's Pt., Doubtless Bay, New Zealand; 27.0mm

Material examined. New Zealand: off Doubtless Bay, 34°56'S & 173°34'E, 47 m (NMNZ); Bergen's Pt., Doubtless Bay, 37 m (coll.Clifford); off Takau Bay, Whangaroa, 82 m (Ponder,1968); Outer Bay of Islands, 35°06'S & 174°12'E, 106 m; N.E. of Ninepin Rock, 35°09'S & 174°10'E, 75 m (both NMNZ); off Hen & Chicken Is (coll.Powell); off Twin Rocks, 46-73 m; between Hope Passage and Deepwater Cove, 37-40 m (both NMNZ); Oke Bay, Bay of Islands, 55 m (coll.Eker); Whangamumu Harbour, 11-13 m (coll.Powell); off Poor Knights Is, 35°22'S & 174°43'E, 146 m, and 35°32'S & 174°41'E, 113-121 m (NMNZ); between Outer Hen & Chicken Is and Mokohinau, 113 m (coll.Powell); Craddock Channel, between Little & Gt.Barrier Is, 37 m (coll.Clifford); Tryphena and Kaitoke, Gt. Barrier Is (coll.Powell); Te Anaputa, Coromandel, 27 m; N. of Cuvier I, 110 m (both NMNZ); off Cuvier I, 73 m; Outer Hauraki Gulf; off Aldermen I, 275 m (all coll.Powell); off E. side of Mayor I, 37°17'S & 176°18'E, 59-74 m, and 104-109 m;

White I, 37°30'S & 177°10'E, 62 m; Ranfurly Bank, East Cape, 37°33'S & 178°50'E, 89-94 m; Rungapapa Knoll, W. White I, 37°34'S & 176°59'E, 188-228 m; off Plate I, 183 m; Bay of Plenty; *c*.9 km N. of Motuhora I, 37°46'S & 177°00'E, 72-84 m (all NMNZ).

Fossil record: Pleistocene: Te Piki, Cape Runaway, Castlecliffian (AIM).

Nassarius (Alectrion) spiratus (A.Adams,1852) (Figs. 3-5)

1852. *Nassa spirata* A.Adams, Proc.Zool.Soc.Lond.Pt.19:106; 1853 Reeve, Conch.Icon. 8:pl.2,figs.13a,b.
1910. *Alectrion spiratus* (A.Adams), Iredale,Proc.Malac.Soc.Lond. 9:71.
1915. *Arcularia spiratus* (A.Adams), Oliver,Trans.Proc.N.Z.Inst. 47:534; 1916 Hedley, J.R.Soc.W.Austral. 1:61.
1918. *Nassarius spiratus* (A.Adams), Hedley, J.Proc.R.Soc.N.S.W. 51:M88; 1952 Powell, Rec.Auckland Inst.Mus. 4:182; 1955 Cotton, R.Soc.Sth. Australia Malac.Sect. No. 7:2,fig.3; 1962 Iredale & McMichael, Aust. Mus.Mem. No. 11:67.
1968. *Nassarius(Alectrion)spiratus* (A.Adams), Ponder, Rec.Dominion Mus. 6:41,pl.1,fig.11 (radula),fig.12 (operculum); 1972 Cernohorsky, Rec. Auckland Inst.Mus. 9:183,fig.140 (shell), fig.148 (radula); 1976 Powell, Rec.Auckland Inst.Mus. 13:155; 1979 Powell, New Zealand Moll. p.205,pl.43,figs.3,4; 1979 Cernohorsky, Trop.Pacif.Mar.shells p.89, pl.28,fig.3.

Figs. 3,4. *Nassarius(Alectrion)spiratus* (A.Adams). 3. Lectotype BMNH (no No.); 22.0 mm. 4. Specimen from Matapouri, N.E. of Whangarei, New Zealand; 21.0 mm.

Shell up to 24.0 mm in length, sutures narrowly tabulated, first 2 post-embryonic whorls axially ribbed and spirally corded, axial ribs persisting to penultimate whorl but becoming obsolete on body whorl, protoconch with 3-3½ finely keeled embryonic whorls. Columellar callus thickened anteriorly but thin and glazed above the parietal wall, columella smooth exept for a parietal denticle, outer lip edentulous, aperture smooth. Cream in colour, ornamented with irregular, short, reddish-brown lines and arrow-shaped markings and short axial streaks at sutures; protoconch white or pale violet, first 2 post-embryonic whorls frequently flushed with violet, columellar callus and edge of aperture white, interior of aperture light orange-brown. Operculum orange-brown in colour with a blackish-brown mark in the shape of a dagger, margins either simple or serrate.

Rachidian of radula with 13-15 denticles, oval accessory plate present, lateral teeth bicuspid, basal margin of the inward pointing cusp either simple or minutely denticulate.

TYPE LOCALITY. Swan River, Australia = error. Long reef. Collaroy, New South Wales, Australia, here designated (specimens in AMS).

DISTRIBUTION. From Ulladulla to Ballina, N.S.W., Australia to Lord Howe I, Norfolk I, Kermadec Is and the N.E. coast of the North I (North Cape — N. of Auckland), New Zealand. Intertidal, in sand.

Type specimens. Three syntypes of *N.(A.) spiratus* are in the BMNH (no number), and the illustrated syntype, dimensions 22.0 x 12.4 mm (Fig. 3) is here selected as the lectotype.

Material examined. Australia. New South Wales: Ballina; Clarence River; Wooli; Woogoolga (all AMS); Port Jackson (NMV); Palm Beach, N. of Sydney; Narrabeen; Long reef, Collaroy; (all AMS); Maroubra (NMV); Long Bay (AMS; NMV); Kurnell; Wollongong; Burril Lake near Ulladulla (all AMS); Shellharbour (AIM); Lord Howe I: (AMS; NMV; coll.Powell); Norfolk I: (AMS; NMV; NMNZ; USNM); Emily Bay; Slaughter House Bay (both NZGS); Pt.Hunter Reserve; Kingston graveyard (both AMS); Kermadec Is: Coral Bay (AIM); Raoul I (AMS); Macauley I; Benham Bay, Sunday I (both NMV); New Zealand: Tom Bowling Bay, N. Cape (AIM); Whatuwhiwhi, Doubtless Bay (AIM; NMNZ); Cavalli I; Whangaroa (both coll.Powell); Horseshoe Bay, Matapouri (coll.Douglas); Matauri Bay (coll.Powell); Matapouri (AIM); Kaitoke and Arid I, Gt.Barrier I; Tryphena and Oruawharo, Gt.Barrier I (both NMNZ); Pacific Bay; Church Bay (both coll. Crosby); Takau Bay (AIM).

The species has usually been considered to be of rare occurence in New Zealand, but a large colony of over 200 specimens has been observed between Paua and the Bay of Islands (The Editor 1975). A living animal from Matapouri is here illustrated (Fig. 5).

Originally described from "Swan River", Western Australia, I have not been able to trace specimens collected in any other Australian locality apart from New South Wales, although Cotton (1955) illustrates a specimen from Port Lincoln, South Australia. Macpherson & Gabriel (1962) do not report the species from Victoria.

Fig. 5. *Nassarius(Alectrion)spiratus* (A.Adams). Animal from Horseshoe Bay, Matapouri, N.Z.; 20.0 mm (photo N.Douglas).

Nassarius (Alectrion) glans particeps (Hedley,1915) (Figs. 6-10)

1853. *Nassa suturalis* var. Reeve, Conch.Iconica 8:pl.2,figs.11a,b (non *Buccinum suturale* Lamarck,1822 = *Nassarius).*
1853. *Nassa rufula* Kiener, Reeve, Conch.Iconica 8:pl.2,fig.14 (non *Buccinum rufulum* Kiener,1834).
1868. *Nassa(Alectrion)suturalis* var. Lam., Cox, Exch.List Land & Mar.shells Aust. p.4.
1876. *Nassa suturalis* Lamarck, Angas, Quart.J.Conch. 1:178.
1913. *Alectrion suturalis* subsp. *dunkeri* Suter, Man.N.Z.Moll. p.398; 1915 Suter, *ibid.* Atlas, pl.45,fig.17; 1915 Iredale, Trans.Proc.N.Z.Inst. 47:467 (non Suter,1908).
1915. *Arcularia particeps* Hedley, Proc.Linn.Soc.N.S.W. 39:738 (ref. to Reeve, 1853, pl.2,fig.11, and Marrat,1877,pl.1,fig.3); 1917 Hedley, Proc.Linn.Soc.N.S.W. 41:712,pl.49,fig.20 (animal).
1917. *Nassa particeps* (Hedley), Odhner, Kungl.Svenska Vet.Handl. 52:51.
1918. *Nassarius particeps* (Hedley), Hedley, J.Proc.R.Soc.N.S.W. 51:M88; 1932 Cotton & Godfrey,Sth.Austral.Nat. 13:96,pl.1,fig.5; 1952 Powell, Rec.Auckland Inst.Mus. 4:182; 1955 Cotton, R.Soc.Sth.Austral.Malac. Sect. No.7:2,fig.1; 1959 Child, Austral.Sea shells p.34,textfig.37; 1962 Iredale & McMichael, Austral.Mus.Mem. No. 11:67; 1966 Anderson, Proc.Linn.Soc.N.S.W. 90(3):247,fig.12 (egg-capsules),fig.13 (veliger); 1917 Wilson & Gillet, Austral.shells p.11,textfig.3 (animal); 1980 Roberts & Wells, Rec.W.Austral.Mus. 8(3):345.
1925. *Arcularia rufula* Kiener, Reath, J.R.Soc.W.Australia 11(6):40.
1961. *Nassarius(Alectrion)particeps* (Hedley), Rippingale & McMichael, Queensl.& Gt.Barrier reef shells p.105,pl.13,fig.20.
1962. *Alectrion particeps* (Hedley),Macpherson & Gabriel, Mar.Moll.Victoria No.2:193,textfig.230.
1966. *Nassarius rufula* Kiener, Hodgkin et.al., W.Austral.Nat.Club Handb. No.9:43.
1971. *Alectrion rufula* (Kiener), Wilson & Gillett, Austral.shells p.102, pl.66,fig.12.
1972. *Nassarius(Alectrion)glans particeps* (Hedley), Cernohorsky, Rec.Auckland Inst.Mus. 9:180,figs.137,138 (shell), fig.147 (radula); 1976 Powell, Rec.Auckland Inst.Mus.13:155; 1979 Powell, New Zealand Moll. p.205,pl.43,fig.5.
1980. *Nassarius rufulus* (Kiener), Roberts & Wells, Rec.W.Austral.Mus. 8(3):346.

Shell up to 32.0 mm in length but frequently smaller, moderately thin, teleoconch of 6-6½ convex whorls, protoconch of 1½-1¾ slightly mamillate embryonic whorls. Early spire whorls sculptured with axial riblets and spiral grooves, last 2-2½ whorls smooth apart from macroscopic growth-striae, sutures usually narrowly ledged but receding in

West Australian populations. Interior of aperture smooth, outer lip simple or with 3-4 very small denticles anteriorly, columella smooth apart from a single fold basally, siphonal notch prominent, anal canal distinct, parietal denticle strong. White to cream in colour, occasionally suffused with violet, protoconch white or purple-brown, upper spire whorls frequently violet, whorls ornamented with wide-spaced brown lines, body whorl with 2-3 spiral rows of small squarish brown spots and occasionally wavy streaks, edge of aperture white, interior brown. In populations from the south and west coast of Australia some individuals become more inflated and barrel-shaped and the sutures are convex rather than narrowly ledged; the colouring varies from an almost uniform dark brown through banded forms to pure white.

Rachidian of radula with 12 denticles, oval accessory plate present, lateral teeth bicuspid.

The spawn of *N.glans particeps* is similar to that of its nominate subspecies *N.glans glans*. Egg-capsules are triangular with long stalks and contain a single large egg. Development is direct with young hatching as crawling juveniles (Anderson 1966). The direct development of single-egged capsules is also reflected in the species paucispiral protoconch (1½-1¾ whorls).

Hedley (1917) illustrated the living animal which he described as cream, irregularly splashed with black. Another illustration appeared in Wilson & Gillett (1971).

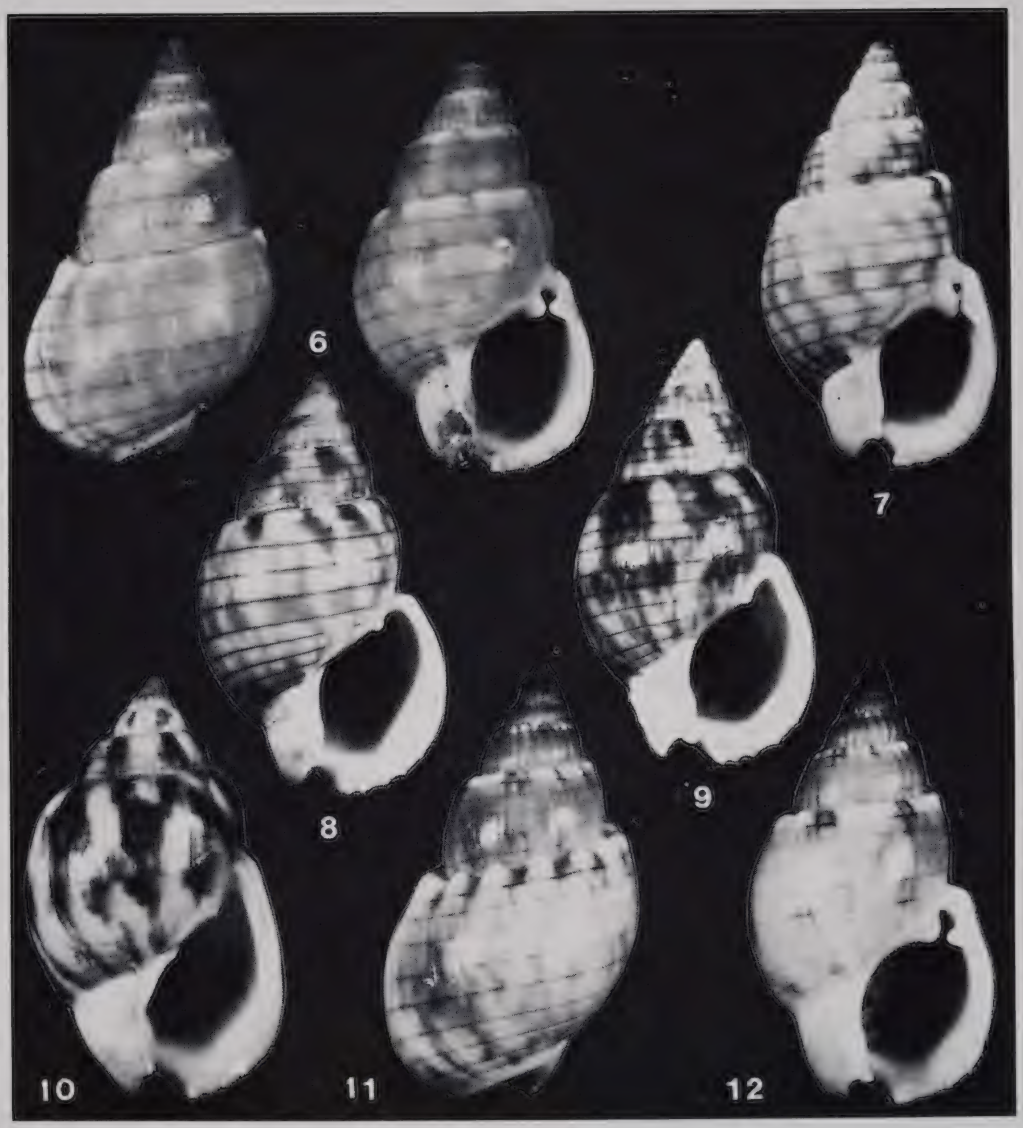
TYPE LOCALITY. Sydney, N.S.W., Australia.

DISTRIBUTION. From Proserpine, Queensland, along the south Australian coast to Port Hedland, West Australia. Not recorded from Tasmania. From the subtidal zone to a depth of 77 m, in sand.

Type specimens. The holotype of *N.(A.)glans particeps* is in the AMS No. C-32708, dimensions 24.0 x 13.0 mm (Fig. 6).

Material examined. (Typical *glans particeps)*. Australia. Queensland: Mooloolaba (NZGS); Dingo Beach, off Proserpine (coll.Marrow); Caloundra; off Moreton Bay, 27°27'S & 153°39'E, 77 m; between Dunwich and Nyora, Stradbroke I; Burleigh Heads (all AMS); New South Wales: off Tweed Heads, 28°17'S & 153°44'E, 73 m; Ballina; Woody Head; Iluka; Shelley Beach, Angourie; Minnie Waters; Wooli; Woogoolga; Fairy Bowers; off Manning River (all AMS); Tuncurry (USNM); Merewether Beach, Newcastle; Bradley Head; Norah Head; Boat Harbour, near The Entrance (all AMS); S.side of The Entrance (NZGS); near Pearl Beach, Broken Bay (AMS); Long reef, Sydney (AIM; NMV); Manly (coll. Powell); Port Jackson (AIM); Sydney Harbour (ZMC); Tong Bay (USNM); Cape Banks (AMS); Kurnell, Botany Bay (AIM; AMS; USNM); Gunamatta Bay, Cronulla (AMS; ZMC); Coalcliff; Shellharbour; Jervis Bay; Huskisson (all AMS); Hyam's Beach, Jervis Bay (NZGS); Ulladulla; Broulec, near Bateman's Bay (both AMS); Twofold Bay (AMS; ZMC); Victoria: Lakes Entrance; Port Arlington; Western Port (all NMV); South Australia: Smoky Bay (NMV); St.Francis I, 32°30'S & 133°21'E, 20 m (AMS); Port Lincoln (NMV); Tumby Bay (AMS); Port Willunga (AIM; NMV); Yankallilla Bay, St.Vincents Gulf (USNM); Western Australia: Two People's Bay, Albany (AMS); S.W. of Cape Naturaliste (WAM); W. of Bunbury (AMS); Cockburn Sound

(NMV; USNM); off Rottnest I (coll.Roberts); N.W. of Jurien Bay, 29°59'S & 114°25'E (WAM); Horrick's Beach, N. of Geraldton; Exmouth Gulf; Pt.Samson (all coll.Marrow).



Figs. 6-12. 6-10. *Nassarius(Alectrion)glans particeps* (Hedley). 6. Holotype AMS No. C-32708; 24.0 mm. 7. Specimen from Long reef, Sydney; 22.7 mm. 8. Broad form with ledged sutures from Port Lincoln, Sth.Australia; 23.7 mm. 9. Broad form with non-ledged sutures from Woodman's Pt., Cockburn Sound, W.Australia; 22.2 mm. 10. Inflated form from Horrock's Beach, N. of Geraldton, W.Australia; 18.2 mm. 11,12. Hybrid specimen of *glans* x *particeps* from Noorea's reef, Regnard Bay, W.Australia; 17.4 mm.

Dubious record: New Zealand: Cavalli I (coll.Powell).
(Barrel-shaped form of *glans particeps)*. Western Australia: E. of Cheyne Bay, 34°55'S & 119°00'E, 75 m (AMS); Frenchman's Bay, Albany (NMV); Princess Royal Harbour, Albany; S.side of Two People's Bay near Albany (both AMS); Margaret River (NZGS); Cowaramup Bay (coll.Hansen); Yallingup (coll.Gardner); Geographe Bay (NMV); off Dunsborough, S.side of Pt.Peron, 48 km S. of Perth (AMS); Woodman's Pt., Cockburn Sound (AMS; NMV); Robb's jetty, Fremantle (NMV); Leighton's Beach near Fremantle (coll.Hansen); Thomson's Bay, N.E. side of Rottnest I (AMS); Garden I, Fremantle (coll.Marrow); Trigg's I Beach, N. of Fremantle (coll.Hansen); Rottnest I; North Beach, Perth; Yanchep (all NMV); Green Head (coll.Marrow); Geraldton (AMS; NMV); Horrock's Beach; Port Hedland; Little Sandy I, N. of Rat I, Houtman Abrolhos Archipelago (all AMS).

The subspecies *N.(A.) glans particeps* is the southern Australian temperate water representative of the tropical Indo-Pacific *N.(A.)glans glans* (Linnaeus), and ranges from Lat.21°S southward along the southern coast of the continent. At the western and eastern faunal region overlap zones (off Proserpine, Queensland and at Exmouth Gulf, Western Australia) both subspecies are sympatric and although interbreeding does not appear to be frequent, some hybrids are occasionally encountered (Figs. 11,12). The tropical *N.glans glans* is larger in size, more solid and elongate with a more shining texture, usually nodose sutures and the violet cast is absent.

Along the southern and western coast of Australia a cline of *N.glans particeps* develops which becomes more frequent towards western Australia. At Port Lincoln, Sth.Australia, specimens are already considerably more inflated and rotund but the sutures still remain narrowly ledged. At Smoky Bay, Sth.Australia, the sutural ledge disappears and the barrel-shape becomes more pronounced. Further towards the west the barrel-shaped form becomes the more frequent form of *particeps* but both forms are sympatric at Albany, Cockburn Sound and Exmouth Gulf.

Recent authors usually consider the south and western Australian rotund form of *particeps* to be a separate species and list it under the erroneous name of "*Nassarius rufulus* Kiener". Kiener (1834-41) described an inflated form of *Nassarius mutabilis* (Linnaeus,1758) under the new name *Buccinum rufulum* and appended the locality "Mediterranean" with a question mark. A.Adams (1852-53) originated the confusion by assigning "*Nassa rufula* Kiener" to "Swan River" (= Western Australia) and in this he is followed by Reeve (1853-54) who illustrates the rotund form of *particeps* under the name *Nassa rufula* and repeats Adams' "Swan River" locality. Deshayes & Edwards (1844) discuss *Buccinum rufulum* Kiener, and correctly assign it, together with Tryon (1882), to the synonymy of the Mediterranean *Nassarius mutabilis* (Linnaeus).

Considerable doubt exists that *N.glans particeps* really lives in New Zealand. Suter (1913-15) reported the species from west of Cuvier I, New Zealand and also the Kermadec Islands. Powell (1952) suggested that Suter's illustration of the species was based on an Australian example and not the Cuvier Island shell, and the Kermadec Island record is probably based on specimens of *N.spiratus* (A.Adams). However, Powell *(op.cit.)* himself reported *particeps* from Cavalli I, New Zealand, on the basis of an immature individual from the La Roche collection, and later (Powell 1976) added "Matapouri" as a

second New Zealand locality. It is probable that an Australian example of *particeps* found its way into the La Roche collection, while Powell's "Matapouri" record was based on a dead individual received by Mrs. I. Powell in an accumulation of shells collected at Matapouri by another collector and thus its real origin remains uncertain. No documented New Zealand specimens of *N.glans particeps* are to be found in any New Zealand or Australian Museum and the species has not been encountered in New Zealand by local collectors.

Nassarius (Alectrion) psila (Watson,1882) (Fig. 13)

1882. *Nassa psila* Watson, J.Linn.Soc.Lond. 16:364.
1886. *Nassa(Alectrion)psila* Watson, Rept.Sci.Res.Voy.H.M.S."Challenger" 15:179,pl.11, figs.4a-c.
1979. *Nassarius(Zeuxis)psila* (Watson), Cernohorsky,Trop.Pacific Mar.shells p.88,pl.27,fig.6 (figd.holotype).

Shell 19.0 mm in length, thin and translucent, sutures narrowly ledged, teleoconch of 6 slightly convex whorls, protoconch of 3 glassy, keeled embryonic whorls. Post-embryonic whorls with slanting, slender axial ribs and sutural gemmules, penultimate whorl with 28 ribs which become progressively obsolete and finally absent on the body whorl; upper spire whorls with weak spiral grooves in interspaces, last two whorls with occasionally obsolete spiral rows of small pits, base of shell with 14 low spiral cords, body whorl suture with a fine sutural girdle. Aperture finely striate within, outer lip and columella edentulous, lower half of columella laminate. Translucent white, body whorl with 2 brown bands.

TYPE LOCALITY. St.185B, Raine I, Torres Strait, Australia, 11°38'15"S & 143°59'38"E, 155 fathoms (284 m), coral sand.

Fig. 13. *Nassarius(Alectrion)psila* (Watson). Holotype BMNH No.1887.2.9.636.; 9.0 mm.

DISTRIBUTION. Known only from the type locality.

Type specimens. The holotype of *N.(A.)psila* is in the BMNH No.1887.2.9.636., dimensions 19.0 x 10.0 mm (Fig. 13).

The species is known only from the holotype. It superficially resembles *N.glans glans* (Linnaeus) but apart from other differences *N.glans* has 1½-1¾ embryonic whorls whereas *N.psila* has 3.

Subgenus **Plicarcularia** Thiele, 1929

Plicarcularia Thiele,1929, Handb.syst.Weicht. p.324. Type species by M *Nassa thersites* Bruguiére = *Buccinum pullus* Linnaeus,1758. Recent, Indo-Pacific.

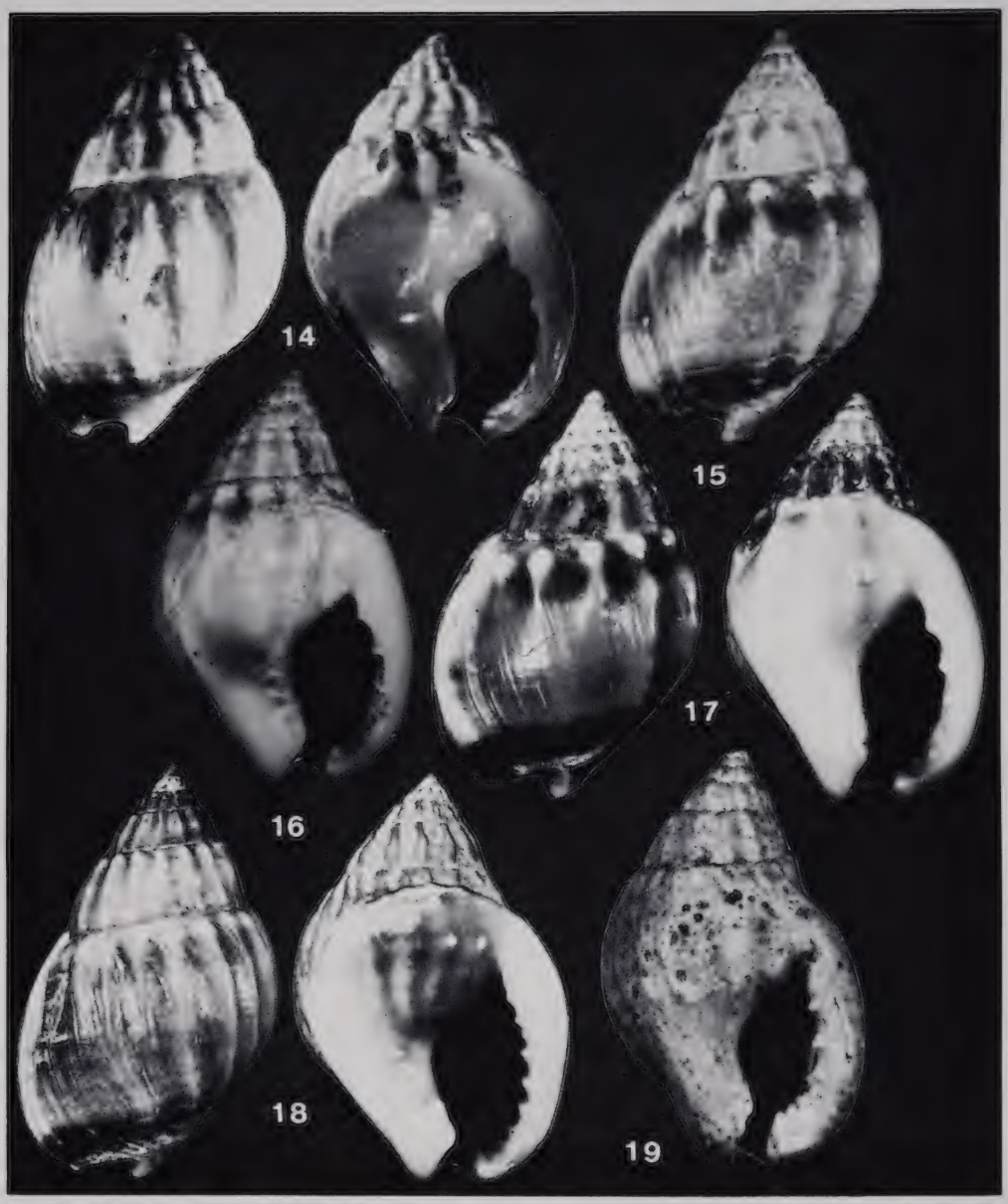
1826. *Eione* Risso, Hist.nat.Eur.merid. 4:171. Type species by SD (Herrmansen, 1847) *Buccinum gibbosulum* Linnaeus,1758. Recent, Mediterranean. (Non *Eione* Rafinesque,1814).
1936. *Parcanassa* Iredale, Rec.Austral.Mus. 19:322. Type species by OD *P.ellana* Iredale,1936 = *Buccinum burchardi* Dunker in Philippi,1849. Recent, S.E. Australia.
1956. *Austronassaria* C. & J. Laseron, Proc.R.Zool.Soc.N.S.W.,Marine Zool. p.71. Type species by M *A.simplex* C. & J.Laseron,1956 (non S.V. Wood,1872) = *Buccinum jonasii* Dunker,1846. Recent, S.E. Australia.
1969. *Retiarcularia* Shuto, Mem.Fac.Sci.Kyushu Univ.(D),Geol. 19:23 (nom.nud.).
1969. *Chelenassa* Shuto, Mem.Fac.Sci.Kyushu Univ.(D),Geol. 19:142. Type species by OD *Nassarius(Chelenassa)elegantissimus* Shuto,1969. Neogene of Philippines.

Species of the subgenus *Plicarcularia* differ from species of *Nassarius s.str.* in its smaller size, elongate-ovate shape and larger columellar callus which is generally spreading in a longitudinal direction, and a constricted aperture. The inner cusp of the lateral tooth of the radula has a tendency to become denticulate on the outer cutting edge, but at least two species have simple cusps as in *Nassarius s.str.* The genus-group *Austronassaria* has been based on a very worn and juvenile specimen of *N.jonasii* (Dunker,1846).

Only two species are known from southern Australia and the subgenus is unknown in New Zealand.

Nassarius (Plicarcularia) burchardi (Dunker in Philippi,1849) (Figs. 14-19)

1849. *Buccinum burchardi* Dunker in Philippi, Abb.Beschr.Conchyl. 3:69,pl.2, fig.14.
1852. *Nassa labecula* A.Adams, Proc.Zool.Soc.Lond. p.98; 1898 Pritchard & Gatliff, Proc.R.Soc.Victoria 11:279.
1868. *Nassa(Arcularia)labecula* A.Adams, Cox, Exch. List.Land.&Mar.shells Aust. p.5.
1901. *Nassa burchardi* Dunker, Tate & May, Proc.Linn.Soc.N.S.W. pt.3:358.
1918. *Nassarius burchardi* Dunker,Hedley, J.Proc.R.Soc.N.S.W. 51:M88; 1921 May, Checklist Moll.Tasmania p.82; 1923 May, Illust.Index Tasmanian shells p.81,pl.38,fig.12; 1932 Cotton & Godfrey, Sth.Austral.Nat.13:94, pl.1,fig.2; 1974 Poore & Rainer, Austral.J.Mar.Freshw.Res.25(3): 378: 1980 Roberts & Wells, Rec.W.Austral.Mus. 8(3):345.
1936. *Parcanassa ellana* Iredale, Rec.Austral.Mus. 19:322; 1962 Iredale & McMichael, Austral.Mus.Mem. No.11:67; 1969 Garrard, J.Malac.Soc. Australia No.12:67 (synonymized with *B.burchardi* Dunker).



Figs. 14-19. *Nassarius(Plicarcularia)burchardi* (Dunker in Philippi). 14. Holotype ZMHU; 8.4 mm (photo courtesy ZMHU). 15,16. Lectotype of *Nassa labecula* A.Adams. BMNH No. 197344; 11.0 mm. 17. Probable syntype of *Parcanassa ellana* Iredale. AMS No C-12999 9.0 mm. 18. Specimen from Clontarf, Sydney; 13.0 mm. 19. Specimen from Gippsland, Victoria.? Pliocene. Tate coll. SAM No.T-581; 8.5 mm.

1955. *Parcanassa burchardi* Dunker, Cotton, R.Soc.Sth.Austral.Malac.Soc. No.7:2,fig.6; 1962 Macpherson & Gabriel, Mar.Moll.Victoria Handb. No.2:195, textfig.232; 1958 Kershaw, J.Malac.Soc.Australia No.2:87.

1961. *Nassarius(Parcanassa)ellana* Iredale, Rippingale & McMichael, Queensl. & Gt.Barrier reef shells p.105,pl.13,fig.18.

1972. *Nassarius(Plicarcularia)burchardi* (Dunker in Philippi), Cernohorsky, Rec.Auckland Inst.Mus. 9:139,figs.31,32 (shell), fig.56 (radula).

Shell up to 15.0 mm in length, solid, teleoconch of 5 convex whorls, protoconch of 2-2¼ smooth embryonic whorls. Sculptured with slender but slightly swollen and often corrugated axial ribs which number 10-17 on the penultimate and 9-20 on the body whorl; axial ribs somewhat nodulose at sutures and becoming weak or obsolete on the dorsum towards the outer lip. Interspaces between ribs smooth, but some individuals have 2 weak spirals on the penultimate whorl and the lower half of the body whorl bears 3-7 spiral threads. Columellar callus orbicular and expanded, reaching body whorl suture but thinner above the parietal wall where axial ribs are protruding through the callus glaze; anterior of columella with 2-5 small denticles, edge of outer lip either smooth or with up to 9 denticles; denticles whenever present, are confined to the margin of the outer lip and the interior of the aperture is smooth. Light to dark brown in colour, penultimate whorl with a sutural band and an additional brown band at the base; columellar callus flushed with yellowish-brown, interior of aperture white, yellow or brown, inside of siphonal canal usually violet. Operculum yellowish-brown, margins serrate or almost smooth.

Rachidians of radula with 12-14 denticles, small accessory plate present, lateral tooth bicuspid.

TYPE LOCALITY. Adelaide, South Australia *(burchardi);* Burias I, Philippines, 6 fathoms (11 m) = error *(labecula);* None *(ellana;* "Stradbroke I" on label accompanying syntypes).

DISTRIBUTION. From Townsville, Queensland, along the east Australian coast to Tasmania and along the south Australian coast to near Fremantle, S.W. Australia. In lagoons and estuaries, 0-100 m.

Type specimens. The holotype of *N.(P.) burchardi* is in the ZMHU, dimensions 8.4 x 5.8 mm (Fig. 14). Three syntypes of *N.labecula* are in the BMNH No. 197344, dimensions of illustrated syntype, here selected as the lectotype, 11.0 x 7.1 mm (Figs. 15,16). Nine probable syntypes of *N.ellana* are in the AMS No.C-12999, dimensions of illustrated syntype 9.0 x 5.8 mm (Fig. 17).

Material examined. Queensland: Palleranda Beach and Strand, Townsville; mouth of Funnel Creek, Sarina; Heron I; Calliope River estuary, Port Curtis; Yeppoon; Pt.Vernon, Eli Creek and Pialba, all Hervey Bay (all AMS); Urangan (NZGS); Tin Can Bay, N.E. of Gympie; Noosa Inlet; Maroochydore; Caloundra; Sangate, Cleveland and Scarborough, all Moreton Bay (all AMS); Stradbroke I, Moreton Bay (AIM); 3.2 km S.E. of Redland Bay jetty, Moreton Bay, 27°37'S & 153°19'E, 4 m; Southport; Coolangatta (all AMS); New South Wales: off Tweed Heads; Ballina Beach; Newcastle; Angourie; Smith's Lake, S. of Forster; Merewether Beach, Newcastle; Norah Head; Wangi Pt., Lake Macquarie; Towoon, near The Entrance; Prickly Pt., Hawkesbury River, 11 m; Pittwater, Broken Bay; Pittwater Basin (all AMS); Palm Beach (NMV); Narrabeen Lake; Long reef, Collaroy; Lane Cove River; Parramatta River, Port Jackson (all AMS); Port Jackson, 4 m

(ZMC); off Mort's Dock, Balmain, 7 m; Queenscliff lagoon, Sydney; Willoughby Bay, Middle Harbour, Sydney; Botany Bay, 6 m; Gunnamatta Bay, Port Hacking; Port Kembla (all AMS); Kelly's Bay, Lake Illawarra; Hare Bay, Jervis Bay; Burrill Lake near Ulladulla; Sussex Inlet; Pambula Lake; Budgewa Beach; Cooks River; Wollaga Lake, 100 m; Merimbula Estuary; Wagonga River; Richmond River Beach (all AMS); Wooli (NMV); Victoria: Mallacoota Inlet (AMS); Port Melbourne; Altona; North Arm, Lakes Entrance; Port Phillip; off Rhyll, Westport (all NMV); Hobson's Bay (NZGS); South Australia: Arno Bay; Larg's Nth.Beach, *c.* 19 km N. of Adelaide (both AMS); Port Adelaide River; Larg's Bay (both NMV); Outer Harbour, Adelaide (coll.Powell); Beachport (NZGS); Tasmania: Swan Pt. (NMV); Tamar River (NZGS); Taroona; Margate; Tinderbox (all TMAG); Western Australia: Penguin I, 32°18'S & 115°41'E (AMS); Oyster Harbour and Princess Royal Harbour, Albany area (Roberts & Wells 1980).

Fossil records: Pliocene: Gippsland, Victoria (SAM); Pleistocene: Minim Cove, Mosman Park, Swan River (AMS); Peppermint Grove; Perth Water; Melville Water (all Reath 1925).

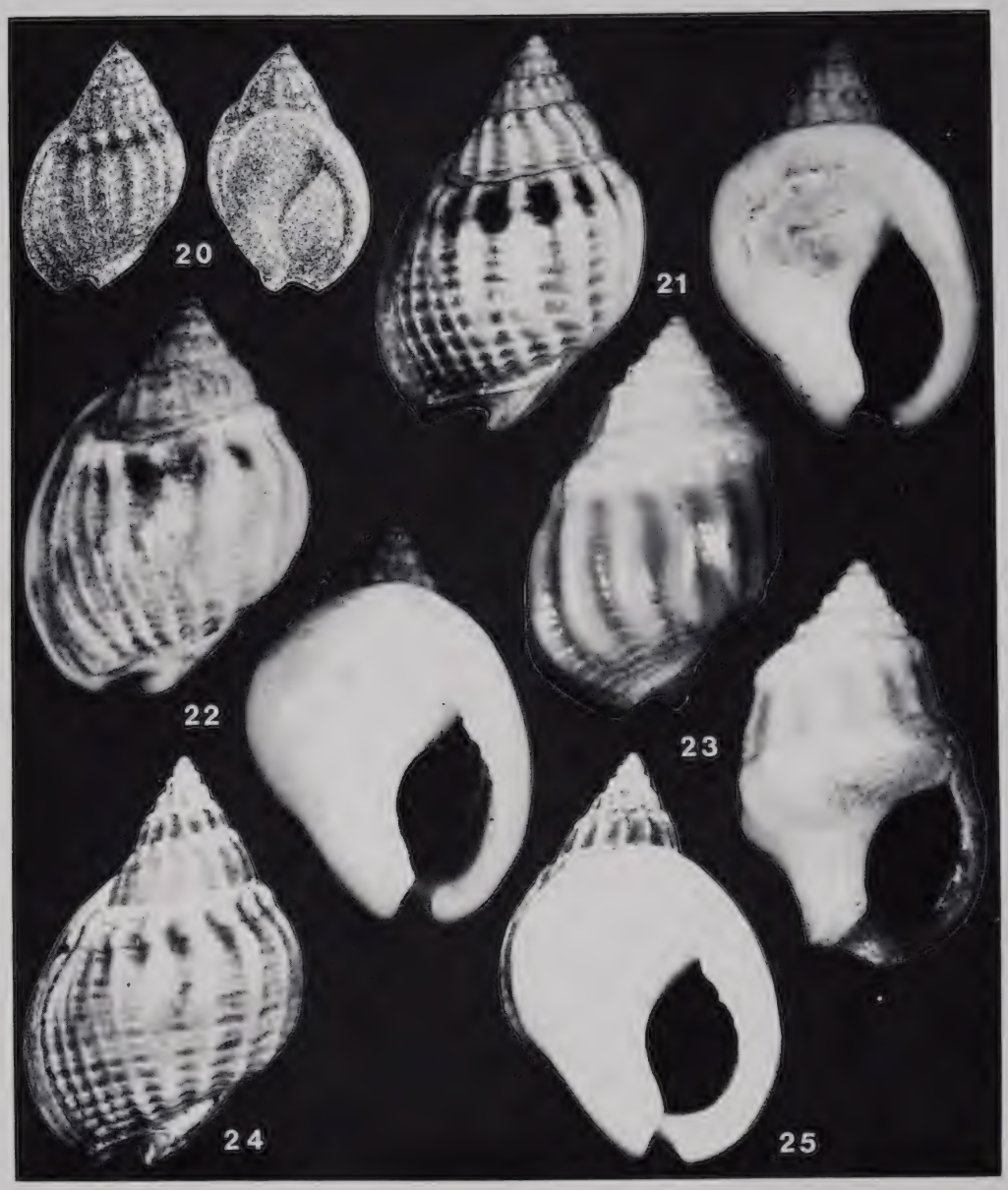
N.burchardi is occasionally confused with *N.jonasii* but differs from the latter in its smooth appearance, lack of strong spiral cords, axial ribs which protrude through the parietal callus shield and the ever present brown basal band on the dorsal side of the body whorl.

Nassarius (Plicarcularia) jonasii (Dunker,1846) (Figs. 20-27)

1846. *Buccinum jonasii* Dunker, Zeit.f.Malakozool. 3:171; 1849 Philippi, Abb. Beschr.Conchyl. 3:66,pl.2,fig.10.
1852. *Nassa cancellata* A.Adams, Proc.Zool.Soc.Lond. p.99; 1853 Reeve, Conch. Icon. 8:pl.23,figs.155a,b; 1932 Tomlin, Proc.Malac.Soc.Lond. 20:42 (non Lea,1833).
1853. *Nassa mangelioides* Reeve, Conch.Icon. 8:pl.23,figs.152a,b; 1932 Tomlin, Proc.Malac.Soc.Lond. 20:96.
1868. *Nassa(Arcularia)mangeloides (sic)* Reeve, Cox, Exch.List Land & Mar. shells Australia p.5.
1889. *Nassa jonasi* Dunker, Brazier, J.Conch. 6:66.
1915. *Arcularia jonasi* Hedley, Proc.R.Soc.N.S.W. 49:52,textfig.16 (animal).
1918. *Nassarius jonasi* Dunker, Hedley, J.Proc.R.Soc.N.S.W. 51:M8.
1955. *Parcanassa jonasi* Dunker, Cotton, R.Soc.Sth,Austral.Malac.Sect.No.7: 2,fig.7.
1956. *Austronassaria simplex* C. & J. Laseron, Proc.R.Zool.Soc.N.S.W. for 1855: 71,textfigs.1,2; 1962 Iredale & McMichael, Austral.Mus.Mem.No. 11:67 (non *Nassa simplex* S.V.Wood,1872; nec Seguenza 1880).
1962. *Parcanassa jonasi* Dunker, Iredale & McMichael, Austral.Mus.Mem. No.11:67.
1972. *Nassarius(Plicarcularia)jonasii* (Dunker), Cernohorsky, Rec. Auckland Inst.Mus. 9:139,figs.33,34.

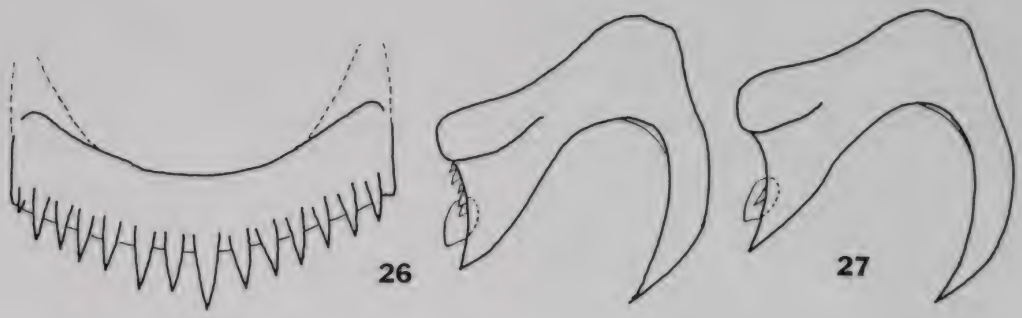
Species similar in size and sculpture to *N.(P.) burchardi* but differs in the following features: interspaces of axial ribs prominently grooved, grooves extending along the entire length of the body whorl forming 4-6 clathrate cords at the base. Columellar callus thicker and more solid, orbicular, reaching, or only slightly extending past the body whorl suture; callus shield completely smooth on the columellar side, lacking the small denticles which are present in *N. burchardi*. Similarly to the latter, the margin of the outer lip either smooth or denticulate. Columellar callus white and not flushed with brown, area above the

parietal wall not thinned as in *N.burchardi* but solid. Fawn to ash-grey rather than brown, interior of aperture brown. Operculum yellowish-brown, margins either simple or very weakly serrated.



Figs 20-25. *Nassarius(Plicarcularia)jonasii* (Dunker). 20. Illustration from Philippi (1874-51, pl.2,fig.10). 21. Lectotype of *Nassa cancellata* A.Adams, BMNH No. 197320; 12.0 mm. 22. Lectotype of *N.mangelioides* Reeve, BMNH (no No.); 11.2 mm. 23. Holotype of *Austronassaria simplex* (C. & J. Laseron), AMS No. C-95244; 9.0 mm. 24,25. Specimen from Shell Harbour, N.S.W., Australia; 13.6 mm.

Rachidians of radula with 13-15 denticles, small ovate accessory plate present, lateral teeth bicuspid, cutting edge of inward pointing cusp with 1-5 minute denticles. (Figs. 26,27).



Figs. 26,27 *Nassarius(Plicarcularia)jonasii* (Dunker). 26. Half-row of radula; off Narrabeen, N.S.W., Australia. 27. Lateral tooth with single side-denticle from same radula.

TYPE LOCALITY. None *(jonasii* and *mangelioides)*; Masbate, Phillippines = error *(cancellata)*.

DISTRIBUTION. From southern Queensland along the east Australian coast to South Australia. Absent from Tasmania and Western Australia. On *Zostera* flats and near river estuaries, 0-100 m.

Type specimens. The type-specimen of *N. jonasii* can no longer be traced in the ZMHU (Dr R. Kilias, *in litt.*) but Philippi's illustration (1847-51, pl.2, fig. 10) (Fig. 20) together with the original description clearly elucidate the species. Three syntypes of *N.cancellata* are in the BMNH No. 197320, and the illustrated syntype, dimensions 12.0 x 7.5 mm (Fig. 21) is here selected as the lectotype. Three syntypes of *N.mangelioides* are in the BMNH (no number), and the illustrated syntype, dimensions 11.2 x 7.3 mm (Fig. 22) is here selected as the lectotype. The holotype of *Austronassaria simplex*, a very worn and juvenile specimen, is in the AMS No. C-95244, dimensions 9.0 x 5.5 mm (Fig. 23).

Material examined. Queensland: Noosa Inlet; Caloundra (both AMS); Burpengary (NMV); Amity Pt., Stradbroke I; 3.2 km S.E. of Redland Bay, 27° 37'S & 153°19'E; Southport (all AMS); New South Wales: Brunswick Heads; Minnie Waters; Woogoolga; Forster; off Nelson Head, Port Stephen; Merewether Beach, Newcastle (all AMS); Balmoral, Sydney (coll. Powell); S. side of The Entrance (NZGS); Toowoon near The Entrance; Woy Woy; Narrabeen Lake (both AMS); Narrabeen (NMV); Clontarf Bay, Port Jackson (AMS); Maroubra (coll. Powell); Gunnamatta Bay; Port Hacking (both AMS); Shellharbour (coll.Powell); off Bermagui; St. George Basin, Sussex Inlet near Jervis Bay; S. side of Ulladulla; Burrill Lake near Ulladulla; Batemans Bay; Wallaga Lake, 100 m (all AMS); off Eden, 37°05'S & 150°05'E, 55-92 m (ZMC); Merimbula Estuary; Cook River; Nudgee River Estuary (all AMS); Victoria: Bekta River, Mallacoota; Gypsy Pt., Mallacoota Inlet (both AMS); Port Phillip; Hopkins River (both NMV); Lorne (AMS; NMV); South Australia: Inverlock (NMV); Outer Harbour, Adelaide (Cotton, 1955).

The species has a very restricted distribution from southern Queensland barely reaching South Australia, and is absent from Tasmania and Western Australia.

Subgenus **Niotha** H. & A. Adams, 1853

Niotha H. & A. Adams, Gen.Rec.Moll. 1:117. Type species by SD (Cossmann, 1901), *Nassa cumingii* A. Adams, 1852 = *Buccinum conoidale* Deshayes in Belanger, 1832. Recent, Indo-pacific.

1936. *Tavaniotha* Iredale, Rec.Austral.Mus. 19:321,337. Type species by OD *Nassa optata* Gould, 1860 = *N. nigella* Reeve, 1854. Recent, S.E. Australia.

Species of the subgenus *Niotha* differ from *Nassarius s.str.* in its smaller size and smaller columellar callus which extends only halfway up the body whorl and frequently tends to thin out above the parietal wall. The radula and operculum are similar to *Nassarius s.str.*

Two living and 4 fossil species are known from Australia but the genus-group is not represented in New Zealand.

Nassarius (Niotha) pauperatus (Lamarck, 1822) (Figs. 28-33)

1822. *Buccinum pauperatum* Lamarck, Hist.nat.anim.s.vert. 7:278; 1834 Kiener, Spéc. gén.icon.coq.viv. 9:90,pl.29,fig.118.

1843. *Buccinum australe* Menke, Moll.Nov.Hollandiae p.21 (non Gmelin, 1791).

1853. *Nassa lirella* "Beck MS", Reeve, Conch.Icon. 8:pl.14,fig.95; 1932 Tomlin, Proc. Malac.Soc.Lond. 20:96.

1853. *Nassa pauperata* (Lamarck), Reeve, Conch.Icon. 8:pl.15,fig.102 and pl.5, fig.27; 1854 Rousseau, Voy.Pole Sud,Zool. 5:83,pl.21,figs.37,38; 1898 Pritchard & Gatliff, Proc.R.Soc.Victoria 11:279; 1901 Tate & May, Proc. Linn.Soc.N.S.W. Pt.3:358.

1868. *Nassa (Niotha) pauperata* (Lamarck), Cox, Exch.List Land & Mar.shells Australia p.5; 1886 Watson,Rept.Sci.Res.Voy.H.M.S."Challenger" 15:176.

1912. *Arcularia pauperata* (Lamarck), Verco, Trans.R.Soc.Sth.Australia 36: 204; 1916 Hedley, J.R.Soc.W.Australia 1:61.

1918. *Nassarius pauperatus* (Lamarck), Hedley, J.Proc.R.Soc.N.S.W. 51:M88; 1921 May, Check-list Moll.Tasmania p.82; 1923 May, Illust.Ind.Tasman. shells, p.81,pl.38,fig.15; 1928 Chapman, Rec.Geol.Surv. Victoria 5:164; 1932 Cotton & Godfrey, Sth.Austral.Nat.13:96,pl.1,fig.4; 1936 Gabriel, Victoria Sea shells p.12, textfig.; 1974 Poore & Rainer, Austral.J. Mar. & Freshw. Res. 25:378; 1980 Roberts & Wells, Rec.W.Austral.Mus. 8(3):345.

1950. *Parcanassa pauperata* (Lamarck), Cotton, Sth.Austral.shells,pl.8,fig. 153; 1955 Cotton, R.Soc.Sth.Austral.Malac.Sect.No.7:2,fig.8; 1958 Kershaw, J.Malac.Soc.Australia No.2:87; 1962 Macpherson & Gabriel, Mar. Moll. Victoria Handb. No.2:193, textfig.231; 1966 Hodgkin *et.al.*, W.Austral.Nat.Club Handb. No.9:43; 1971 Wilson & Gillet, Austral. shells p.102,pl.66,figs.5,5a.

1962. *Tavaniotha pauperata* (Lamarck), Iredale & McMichael, Austral.Mus.Mem. No. 11:67.

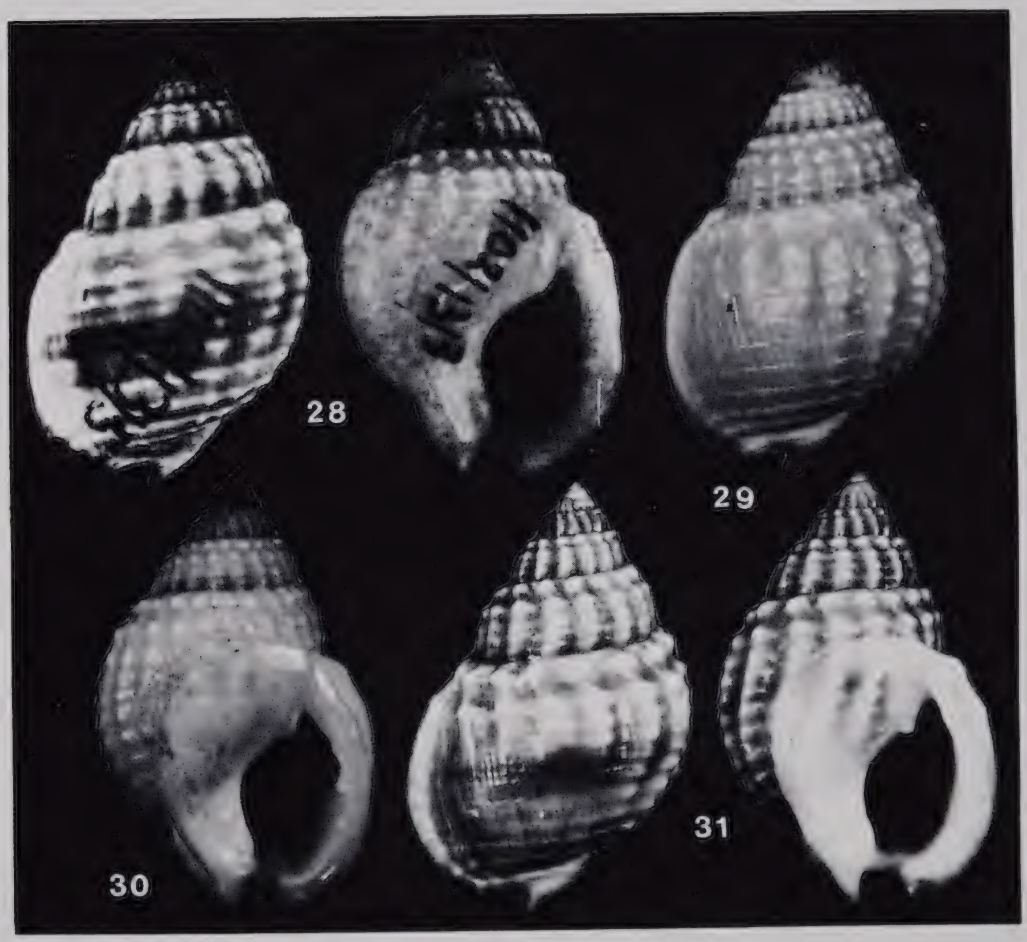
1972. *Nassarius (Niotha) pauperatus* (Lamarck), Cernohorsky, Rec.Auckland Inst. Mus. 9:147,figs.47,48 (shell), fig.55 (protoconch), fig.73 (figd.syntype).

Shell up to 20.0 mm in length, moderately thin and inflated, sculptured with coarse and granulose axial ribs and overriding spiral cords; sutural gemmules separated from the axial ribs by a shallow, smooth channel, ribs becoming obsolete on the dorsal side of the body whorl. Columellar callus orbicular and expanding partly on to body whorl without reaching body whorl suture; callus has a tendency to thin above the parietal wall. Outer lip

backed by a varix, interior of lip either smooth or denticulate, columella with small, prominent or obsolete denticles. Variable in colour, generally creamy-white, ornamented with a broad brown band on the body whorl, some individuals uniformly creamy-white or brown; columellar callus and aperture white, sides of the siphonal canal frequently flushed with dark brown. Operculum yellowish-brown, margins generally serrate but occasionally smooth.

Rachidians of radula with 12-16 denticles, oval accessory plate present, lateral teeth bicuspid, central base with 1-3 small denticles (Figs. 32, 33).

TYPE LOCALITY. None *(pauperatus* and *lirella);* New Holland = Australia *(australe).*



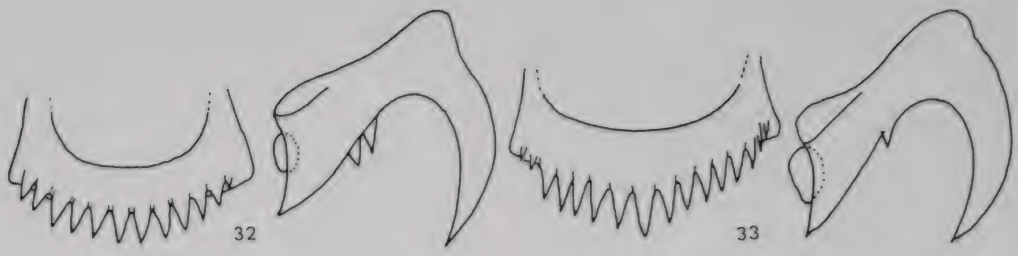
Figs. 28-31. *Nassarius(Niotha)pauperatus* (Lamarck). 28. Probable syntypes MHNG No. 1102/13/5 and 1102/13/3; 15.9 mm and 17.7 mm respectively. 29,30. Lectotype of *Nassa lirella* Reeve, BMNH No. 197361; 17.1 mm. 31. Specimen from Outer Harbour, Adelaide; 17.0 mm.

DISTRIBUTION. From Sydney, New South Wales along the east Australian coast to Tasmania and along the southern coast to Geraldton, Western Australia. Marine and estuarine, on tidal sand-flats, in rock-pools, eel-grass and muddy sand, 0-70 m.

Type specimens. Five probable syntypes of *N. (N.) pauperatus* are in the MHNG No. 1102/13/1-5, dimensions of illustrated syntype No. 1102/13/3 is 17.7 and No.1102/13/5 is 15.9 mm (Fig. 28). According to Rosalie de Lamarck's black ink manuscript annotations on the margins of her fathers personal copy of the seventh volume of the "Histoire naturelle de animaux sans vertebres", Lamarck owned 5 specimens of *N.pauperatus* and the extant material is most probably the type lot. The types of *Buccinum australe* Menke, are no longer traceable. Three syntypes of *N. lirella* are in the BMNH No.197361, and the illustrated syntype, dimensions 17.1 x 10.7 mm, is here selected as the lectotype (Figs. 29, 30).

Material examined. New South Wales: Narooma; Port Jackson; Bermagui (all AMS); Victoria: Inverlock (NMV); Lake Malacoota (AMS); Melbourne (NZGS); St. Kilda Beach; Lakes Entrance (both NMV); Altona Bay (NZGS); Brighton (NMV); Sandringham (USNM); Port Arlington (AMS); Western Beach, Corio Bay, Port Phillip (NZGS); Port Phillip (USNM); S. end of Swan Bay, S.E. of Geelong (AMS); Sorrento (NMV); Portland Bay; Sorrento (both AMS); Rosebud; Port Fairy (both NZGS); San Remo, Western Port (USNM); Rhyll, Phillip I (NMV); Robertson Beach near Pt Albert (AMS); Shallow Inlet (NMV); Corner Inlet, Wilson's Promontory (AMS); South Australia: Ceduna (coll.Powell); St. Peter's I; Streaky Bay (both AMS); Arno Bay (coll. Powell); Tumby Bay; Coffin Bay (both AMS); Pt. Lincoln (AIM; AMS); Salt Creek, Pt. Lincoln (TMAG); Chinaman's Creek, Upper Spencer Gulf (AMS); Hardwick Bay; St Vincent Gulf (both NMV); Bay of Schoals, N.E. Kangaroo I; Larg's North Beach; Glenelg Beach near Adelaide (all AMS); Semaphore (NMV); Semaphore Bay; Mulaton (both coll.Powell); Lang's Beach, Adelaide (AMS); Outer Harbour, Adelaide (USNM); Port Adelaide River (coll.Powell); Holdfast Bay (AMS); Yorke's Peninsula (ZMC); N. of Stansbury, Yorke's Peninsula (coll.Powell); Sultana Bay (USNM); Encounter Bay; American River, Kangaroo I; Beachport (all AMS); Tasmania: Perkin's Bay, West Inlet (TMAG); Stanley (AMS); Black River Beach (NMV); Brickmaker's Beach; Bridport; Flinder I (all AMS); Ulverston (NMV); mouth of Inglis River, Wynyard (TMAG); Launceston (NZGS); Lisdillon; Spring Beach; Prosser River; Earlham; Reidle Bay, Maria I; Blackman Bay near Marion Bay; Midway Pt.; Cambridge (all TMAG); N. of Sanford, S.E. Hobart; Cremorne, W.side of Frederick Henry Bay (both AMS); S. shore of Pipe Clay lagoon (TMAG); Eaglehawk Bay, 43°01'S & 147°51'E (AMS); Rockeby, Ralph's Bay; Ralph's Bay near Sth.Arm; Oyster Cove; Margate Beach; Kettering; Port Arthur; Bond Bay (all TMAG); Port Cygnet (NMV); Simpson's Bay (AMS); Kelly Basin, Port Davey (TMAG); Sister's Beach (NMV); The Neck, Bruny I; Catermaran (both TMAG); Blackwood River (NMV); Hawley; Piper's Heads; White Beach, Mbeena (all TMAG); Western Australia: King George Sound; Oyster Harbour, S. side of Emu Pt., Albany (both AMS); Augusta (coll.Marrow); Geographe Bay (AMS); Leighton Beach near Fremantle (coll. Hansen); Rottnest I (AMS); Cottesloe Beach, Perth (NZGS); Irwin River, S. of Geraldton (AMS).
Fossil record: Pleistocene: Sorrento Bore, Mornington Peninsula, Victoria, depth 489 feet (149 m) [Chapman 1928].

N.(N.) pauperatus is a common intertidal species. Estuarine forms are frequently uniformly brown in colour.



Figs. 32,33 *Nassarius(Niotha)pauperatus* (Lamarck). Half-row of radula. Two specimens from Rosebud, Victoria, Australia.

Nassarius (Niotha) nigellus (Reeve, 1854) (Figs. 34-39)

1846. *Buccinum semigranosum* Dunker, Zeit.f.Malakozool. 3:170; 1849 Philippi, Abb.Beschr.Conchyl. 3:45,68, pl.1,figs.9a-c and pl.2,fig.12; 1858 Kuester, Martini & Chemnitz Syst.Conchyl.-Cab. 3(1):27,pl.6,figs. 13-15 (non Wood, 1828).
1853. *Nassa semigranosa* Dunker, Reeve, Conch.Icon. 8:pl.17,fig.116.
1854. *Nassa nigella* Reeve, Conch.Icon. 8:pl.26,figs.173a,b; 1932 Tomlin, Proc. Malac.Soc.Lond. 20:96.
1860. *Nassa optata* Gould, Proc.Boston Soc.Nat.Hist. 7:331; 1878 Tenison-Woods, Proc. Linn.Soc.N.S.W. 2:257; 1964 Johnson, U.S.Nat.Mus.Bull.No.239:119,pl.16,fig.4 (figd.lectotype).
1864. *Nassa munieriana* Crosse, J. Conchyl. 12:345,pl.13,fig.6; 1932 Tomlin, Proc. Malac.Soc.Lond. 20:96.
1876. *Nassa tasmanica* Tenison-Woods, Proc.R.Soc.Tasmania 39:737,pl.84,fig.81.
1880. *Nassa peritrema* Tenison-Woods, Proc.Linn.Soc.N.S.W. 4:21,pl.4,figs. 5,5a; 1903 Hedley, Mem.Austral.Mus. 4:377.
1898. *Nassa jacksoniana* Q. & G., Pritchard & Gatliff, Proc.R.Soc.Victoria 11:278; 1903 Hedley, Mem.Austral.Mus. 4:377 (non *Buccinum jacksonianum* Quoy & Gaimard, 1883 = *Nassarius).*
1915. *Arcularia semigranosa* Dunker, Hedley, Proc.Linn.Soc.N.S.W. 39:735, pl.83,fig.78 (figd.type specimen of *Nassa optata* Gould).
1915. *Arcularia tasmanica* T.-W., Hedley, Proc.Linn.Soc.N.S.W. 39:737,pl.84,fig.81.
1918. *Nassarius peritrema* T.-W., Hedley, J.Proc.R.Soc.N.S.W. 51:M88.
1918. *Nassarius semigranosus nigellus* Hedley, J.Proc.R.Soc.N.S.W. 51:M88.
1921. *Nassarius semigranosus* Dunker, May, Check-list Moll. Tasmania p.82; 1923 May, Illust.Ind.Tasman.shells p.81,pl.38,fig.16; 1924 Iredale, Proc.Linn.Soc.N.S.W. 49:270.
1924. *Nassarius tasmanicus* (T.-W.), Iredale, Proc.Linn.Soc.N.S.W. 49:271; 1932 Cotton & Godfrey, Sth.Austral.Nat. 13:97.
1932. *Nassarius nigellus* (Reeve), Cotton & Godfrey, Sth.Austral.Nat. 13:97; 1974 Poore & Rainer, Austral.J.Mar. & Freshw.Res. 25(3):378; 1980 Roberts & Wells, Rec.W.Austral.Mus. 8(3):345; 1980 Editor, Austral. Shell News No.'s 28/29:2, textfigs.
1932. *Nassarius munieriana* Crosse, Cotton & Godfrey, Sth.Austral.Nat. 13:97.
1955. *Tavaniotha optata* (Gould), Cotton, R.Soc.Sth.Austral.Malac.Sect.No.7: 2,fig.2; 1962 Iredale & McMichael, Austral.Mus.Mem. No.11:67; 1962 Macpherson & Gabriel, Mar.Moll.Victoria Handb. No.2:195.
1955 *Tavaniotha munieriana* Crosse, Cotton, R.Soc.Sth.Austral.Malac.Sect.No.7:2,fig.5.
1962. *Tavaniotha nigella* (Reeve), Iredale & McMichael, Austral.Mus.Mem. No.11:67.
1962. *Tavaniotha nigella tasmanica* (T.-W.), Iredale & McMichael, *ibid.*No.11:67.
1962. *Tavaniotha optata munieriana* (Crosse), Iredale & McMichael, *ibid.*No.11:67.

1962. *Tavaniotha peritrema* (T.-W.), Iredale & McMichael, *ibid.* No.11:67.
1972. *Nassarius (Niotha) nigellus* (Reeve), Cernohorsky, Rec.Auckland Inst.Mus. 9:148, figs.49,50 (shell), fig.54 (protoconch), figs.64-66 (radulae).

Shell superficially similar to *N.(N.) pauperatus* (Lamarck), up to 13.0 mm in length, thinner and less bulbous at the body whorl, axial ribs on spire whorls more distinctly angulate on presutural ramp, sculpture finer and more discreet. Outer lip either smooth or denticulate, columellar callus orbicular and not thinning in adult specimens. Protoconchs slightly different, that of *N.nigellus* being convexly bulbous with first post-embryonic whorls axially striate; protoconch of *N.pauperatus* more button-shaped with first post-embryonic whorls heavily ribbed. Uniformly cream in colour, some individuals light to dark brown or occasionally banded with brown; aperture and columellar callus white or flushed with brown.

Rachidians of radula with 9-19 denticles, ovate accessory plate present, lateral teeth bicuspid, cutting edge of the inward pointing cusp and the basal edge between the two cusps denticulate; number of denticles varies 1-3.

TYPE LOCALITY. New Zealand = error *(nigellus)*: none *(semigranosum)*; Sydney Harbour, N.S.W. *(optata)*; Gulf of St. Vincent, Sth.Australia *(munieriana)*; Nth.Tasmania *(tasmanica)*; Sow & Pigs, Port Jackson, N.S.W. *(peritrema)*. Sydney Harbour, N.S.W., is here designated as the type locality of *N.(N.) nigellus*.

DISTRIBUTION. From Cairns, Queensland, along the east coast to Lord Howe I, to Tasmania, and along the southern coast to Fremantle, Western Australia. On mud and sand-flats and in sand, 3-183 m.

Type specimens. Three syntypes of *N.(N.) nigellus* are in the BMNH No.197352, and the illustrated syntype, dimensions 11.5 x 6.8 mm, is here selected as the lectotype (Fig. 34). The lectotype of *N.optata* is in the MCZ No. 169270, dimensions 10.6 x 5.6 mm (Fig. 36). Seven syntypes of *N.munieriana* are in the BMNH No.1871.7.8.3., and the illustrated syntype, dimensions 13.5 x 7.8 mm, is here selected as the lectotype (Fig. 37). Three syntypes of *N.tasmanica* are in TMAG No.E-784 (old No. TM-5294), and the

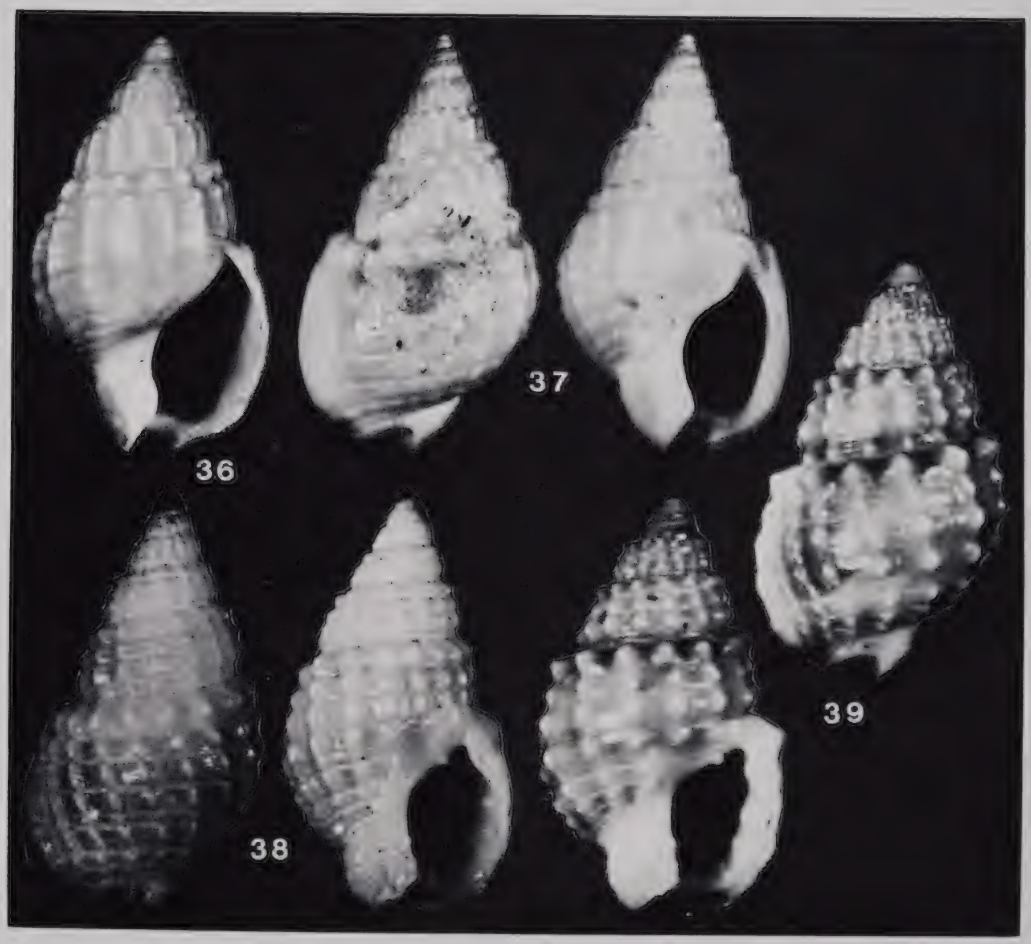
Figs. 34,35. *Nassarius(Niotha)nigellus* (Reeve). 34. Lectotype BMNH No. 197352; 11.5 mm. 35. Lectotype of *Nassa tasmanica* Tenison-Woods, TMAG No. E-784: 11.8 mm.

illustrated syntype, dimensions 11.8 x 7.3 mm, is here selected as the lectotype (Fig. 35). Two syntypes of *N.peritrema* from Port Jackson (ex-John Brazier) are in the ANSP No.16369, dimensions of illustrated syntype 7.8 x 4.0 mm (Fig. 38).

Material examined. Queensland: Buchan's Pt., N. of Cairns; Bowen; Tannum Sands, S.E. Gladstone; off Wide Bay, 64 m; Shoal Bay Rocks, Keppel Bay; Four Mile Beach, Port Douglas; Zilzie, Keppel Bay; Dundowran Beach, Harvey Bay; Yepoon; 27 km N.E. of North reef, 23°08'S & 152°12'E, 115 m (all AMS); Shelley Beach, Caloundra (coll.Whitehead); Caloundra (AIM); Alexandra Head; off Cape Moreton, 128-183 m (both AMS); Cape Moreton, 117 m (AIM); off Jumpin Pin Bar, 37-55 m (AMS); New South Wales: Ballina (NZGS); Richmond River Beach; Clarence River; 8 km E. of Woody Head, 41 m; Shelley Beach, S. of Angourie; Coff's Harbour; S. of Smoky Bay, 31°05'S & 153°03'E, 15 m; Port Macquarie; off Manning River; 17 km N.W. of Crowdy Head, 91 m; off Port Stephen, 45-73 m; Newcastle Bight, 44-48 m; Merewether Beach, Newcastle; Patanga, Broken Bay; Woy Woy; Broken Bay, 82 m (all AMS); Twofold Bay; Maroubra (both AIM); 2 km E. of Little Bay, Sydney, 33°59'S & 151°16'E, 45 m; Chinaman's Beach near Balmoral Sydney; Kurnell, Botany Bay (all AMS); Watson's Bay, Port Jackson, 5-9 m (ZMC); off Cronulla, 60-100 m (coll.Powell); E. of Bate Bay, N. of Port Hacking, 75 m; Coolcliff (both AMS); Shellharbour (coll.Powell); Hyam's Beach, Jervis Bay (NZGS); Sussex Inlet reef, Wreck Bay; off Brush I, S. of Ulladulla, 55-73 m (both AMS); off Eden, 37°05'S & 105°05'E, 55-92 m; Eden Bay; Disaster Bay, 55-73 m (all ZMC); off Port Kembla, 82 m; 4 km off Pt.Jibbon, 73 m (both AMS); Victoria: Gabo I, 28 m; off Monumental Bay, Gabo I, 15-18 m; Mallacoota; Mt.Cann; off Cape Everard, 128-146 m; off Lakes Entrance (all AMS); Sandringham; between Gabo I and Flinders I (both NMV); Mordialloc; Rickett's Pt., Port Phillip; between Cape Hawe and Lakes Entrance, 38°13'S & 149°06'E, 146-158 m (all AMS); Hastings (NMV); Rosebud (coll.Powell); Port Fairy (AIM); Western Port (ZMC); Warmeet Channel, Western Port Bay, 4 m; between Eagle Rock and Crawfish Rock, Western Port Bay, 3 m; Flinders, Western Port; Lorne; Walkerville, Waratah Bay (all AMS); Port Winstun (ZMC); Tasmania: 32 km E. of Babel I, Bass Str., 118 m; E. of Grassy, King I; Brickmakers Beach near Rocky Cape (all AMS); E. end of Black River Beach (NZGS); Woody I; Earlham; Stanley; Coles Bay; West Pt., Marrawah; Thunder & Lightning Bay, Barren I; N.E. of Barren I, 47 m; Cape Barren I (all TMAG); Somerset (AMS); Green's Beach; between Pardoe Pt. and Pt.Sorrell; Long Beach, Tamar River (all TMAG); S. of St.Helen's Pt., 41°30'S & 148°17'E, 31 m; off Piccaninny Pt; N. of Bicheno, 41°40'S & 148°17'E, 31 m; Rockeby, Derwent Estuary (all AMS); 32 km S. of Refugee I, 13-15 m; N. of Oyster Bay, Maria I; Sth.Blackman's Bay; Sandy Oceans Beach, Marion Bay; Primrose Sands, Carlton (all TMAG); Hobart (AMS); Sandy Bay, Hobart (TMAG); Princess Pier, Hobart; Cremorne (both AMS); Roches Beach, Frederick Henry Bay; Taroona; Margate Beach (all TMAG); Roberts Pt., 43°08'S & 147°15'E, 18-25 m (AMS); Port Arthur (AIM); D'Entrecasteaux Channel; Mills reef, W. coast of Bruny I (both AMS); Kelly Basin, Port Davey; Whales Cove, Port Davey; Great Taylor Bay; Cooks Beach; Tinderbox (all TMAG); South Australia: Pt.Sinclair, 40 m; Smoky Bay, 73 m (both coll.Marrow); Great Australian Bight, 36°00'S & 138°21'E, 64 m (coll.Powell); Aldinga Beach, S. of Noarlunga (AMS); Aldinga Bay; Encounter Bay (both NMV); E. of Kangaroo I, 64 m (coll.Powell); Beachport; Semaphore Beach (both AMS); Western Australia: off Nubeena, King George Sound; Beach near railway station, Albany; Emu Pt., Albany; Cheyne Beach, *c*. 48 km E. of Albany; Margaret River mouth; between Eucla and Esperance, 75-293 m; Cockburn

Sound, 20 m (all AMS); Peppermint Grove (coll.Marrow); Mosman Beach, Cottesloe (WAM); Lord Howe Island: off the coast, 31°34'S & 159°00'E, 73 m (AMS).
Fossil record: Pleistocene: Paulik's Bore, Semple Road, Jandakot, 39.3 m, Perth Basin; Bebich's Bore, Barfield Road, Thompson's Lake, 39.6 m; spoil from drain, S. side Bussell Highway, Vasse; Eaton's Bore, 240 Wharf Street, Queen's Park, 15.2 - 18.3 m (all WAM).

The species is extremely variable in shape and sculpture and the various forms described have been discussed in detail by Cernohorsky (1972). Malformation in Nassariidae appears to be more frequent than in other Neogastropod groups and a malformed specimen of *N.nigellus* has been recently illustrated (The Editor 1980).



Figs. 36-39. *Nassarius(Niotha)nigellus* (Reeve). 36. Lectotype of *Nassa optata* Gould, MCZ No. 169270; 10.6 mm. 37. Lectotype of *N.munieriana* Crosse, BMNH No. 1871.7.8.3.; 13.5 mm. Syntype of *N.peritrema* Tenison-Woods, ANSP No. 16369; 7.8 mm. 39. Specimen from Cape Moreton, Qld., Australia; 5.3 mm.

Nassarius (Niotha) sublirellus (Tate, 1888) (Fig. 40)

1888. *Nasa (sic) sublirella* Tate, Trans.R.Soc.Sth.Australia 10:171.
1889. *Nassa sublirella* Tate, Trans.Proc.R.Soc.Sth.Australia 11:118,pl.4, fig. 2.
1970. *Niotha sublirella* (Tate), Darragh, Mem.Nat.Mus.Victoria 31:197.

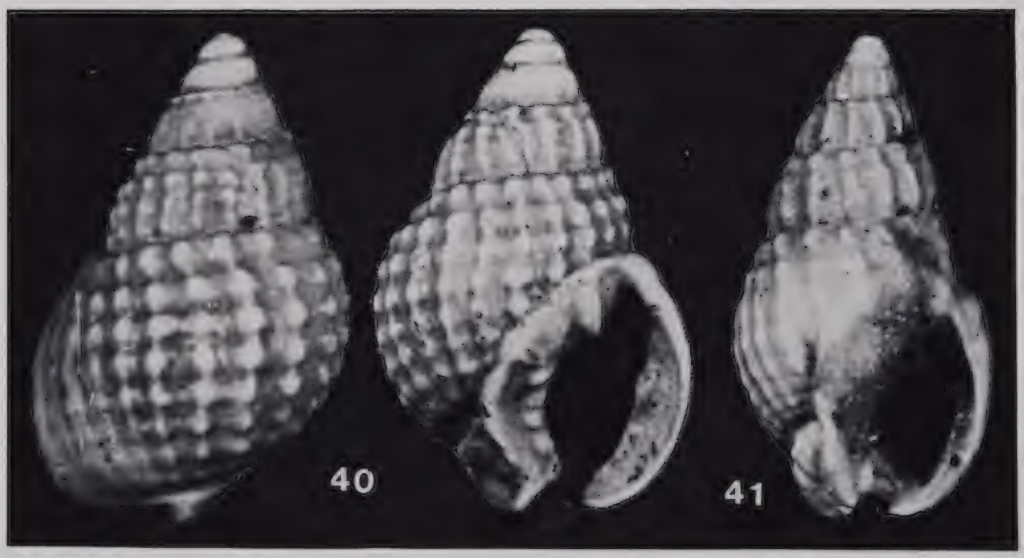
Shell up to 10.0 mm in length, ovate to elongate-ovate, teleoconch of 4¾-5 convex whorls, protoconch of 2¾ smooth embryonic whorls, sutural nodules usually separated from remaining sculpture by a concave trough. Sculptured with *c.* 16 axial ribs and spiral rows of moderately large nodules, penultimate whorls with 4 rows and body whorl with 8-9 rows, siphonal fasciole with a strong oblique cord. Aperture moderately open, outer lip with 4-5 denticles, columellar callus narrowly spreading on to body whorl, lower half of columella with 4-5 strong denticles, parietal denticle prominent.

TYPE LOCALITY. Upper beds at Muddy Creek, Pliocene of Victoria, Australia.

STRATIGRAPHIC RANGE. Kalimnan, L.Pliocene, Victoria, Australia.

Type specimens. Fourteen syntypes of *N.sublirellus* ranging 4.9-9.5 mm, are in the Tate collection, SAM No. T-580. The syntype which has been illustrated by Tate (1889,pl.4,fig.2), dimensions 8.6 x 5.7 mm, is here selected as the lectotype (Fig. 40).

Material examined. Pliocene: Grange Burn near Hamilton, Victoria (AMS).



Figs. 40,41. 40. *Nassarius(Niotha)sublirellus* (Tate). Lectotype Tate Coll. SAM No. T-580; 8.6 mm. 41. *N.(N.) nigellus* (Reeve). Slender syntype of *Nassa sublirella* Tate; 7.6 mm.

N.sublirellus is undoubtedly the forerunner of the Recent *N.nigellus* (Reeve), and the lectotype of *N.sublirellus* closely resembles the form *tasmanica* of *N.nigellus*. *N.sublirellus*, however, differs in the more defined and clearly bordered columellar callus and the more prominent columellar denticles. One of Tate's slender syntypes of *N.sublirellus* (Fig. 41) is the species *N.nigellus* (Reeve).

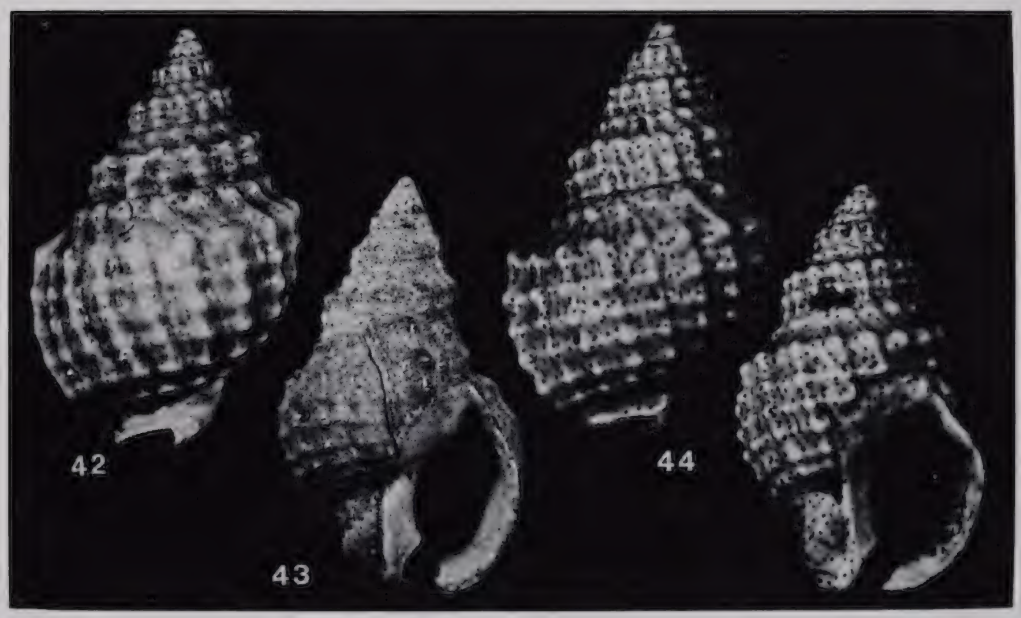
Nassarius (Niotha) crassigranosus (Tate, 1888) (Fig. 42-44)

1888. *Nassa crassigranosa* Tate, Trans.R.Soc.Sth.Australia 10:170,pl.12, figs.6a,b; 1897 Harris, Cat.Tert.Moll.Brit.Mus. Pt.1:168.
1928. *Nassarius crassigranosus* Tate, Chapman, Rec.Geol.Surv.Victoria 5:164.
1970. *Tavaniotha crassigranosa* (Tate), Darragh, Mem.Nat.Mus.Victoria 31:164.

Shell up to 18.0 mm in length, solid, conically-ovate, teleoconch of 5¼-6 whorls, protoconch of 2½-3 small embryonic whorls, whorls concave on presutural ramp. Sculptured with slender axial ribs which number from 14-16 on penultimate or body whorl and spiral cords which number from 3-4 on the penultimate and from 7-8 on the body whorl; rounded, elevated nodules form at the point of intersection of axial and spiral cords, sutures with a row of nodules. Outer lip smooth or with up to 6 weak denticles, columella calloused, bordered and smooth, siphonal fasciole with up to 5 oblique cords. Some individuals with a broad varix on body whorl.

TYPE LOCALITY. Upper beds at Muddy Creek, Pliocene of Victoria, Australia.

STRATIGRAPHIC RANGE. Kalimnan, L.Pliocene, Victoria, Australia.



Figs. 42-44. *Nassarius(Niotha)crassigranosus* (Tate). 42. Lectotype Tate coll. SAM No. T-586; 14.0 mm. 43. Paralectotype Tate coll. SAM No. T-586; 17.4 mm. 44. Specimen from Muddy Creek, Hamilton, Victoria,Pliocene of Australia; 11.0 mm.

Type specimens. A growth-series of 18 specimens of *N.(N.) crassigranosus* ranging 4.0-17.4 mm, are in the Tate collection, SAM No. T-586. The syntype illustrated by Tate (1888,pl.12,fig.6a), dimensions 14.0 x 8.8 mm, is here selected as the lectotype (Fig. 42).

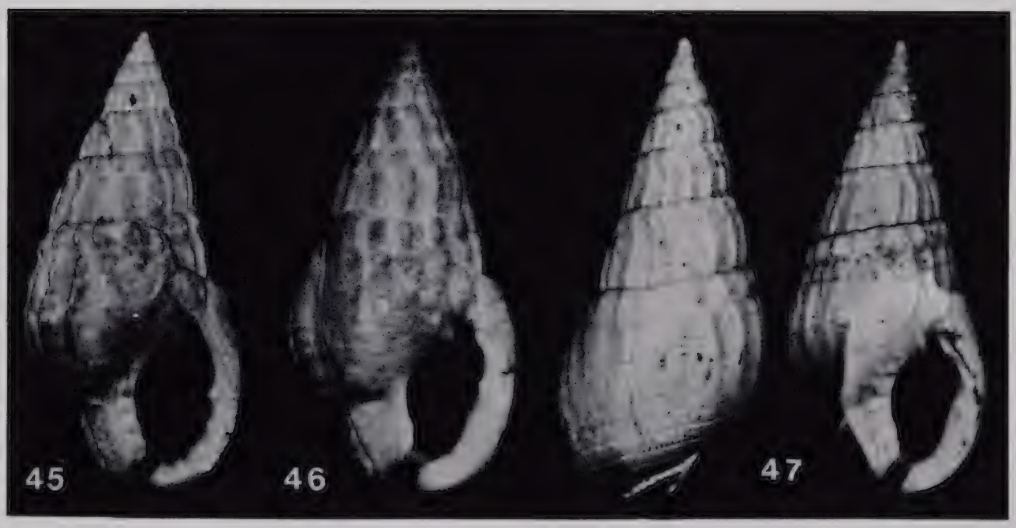
Material examined. Pliocene: Grange Burn near Hamilton, Victoria (AMS; NZGS); S.W. side of Bunga Creek, Upper Jemmy's Pt., E. of Lakes Entrance (AMS); Muddy Creek, Hamilton, Victoria (AMS; NZGS); Reported from the Sorrento Bore, Mornington Peninsula, Victoria, 585 feet (178 m) (Chapman 1928).

Nassarius (Niotha) nuttalli (Ludbrook, 1978) (Figs. 45-47)

1978. *Tavaniotha nigella nuttalli* Ludbrook, Geol.Surv.W.Austral.Bull. 125:152, pl.20,figs.33,34.

Shell up to 22.0 mm in length, elongate-ovate, spire tall, teleoconch of 6-6½ weakly convex to almost flat-sided whorls, protoconch of 2½-3 smooth embryonic whorls. Sculptured with slender axial ribs which number 15-16 on each of the last two whorls, ribs constricted anteriorly to suture by a narrow channel to form a row of sutural beads, axial ribs tending to become obsolete on lower half to the dorsal side of the body whorl; spiral sculpture consists of 5-6 weak cords or striae on lower half of body whorl. Outer lip variced and with 6-7 denticles within, columellar callus spreading on to body whorl without reaching suture, columella arcuate and with 4-8 strong denticles, parietal denticle distinct; siphonal notch prominent, fasciolar cord usually with a single cord.

TYPE LOCALITY. St.4434-FL8, 61 km E. of Madura, W.Eucla Basin, 31°53'47"S & 127°35'E, Roe Calcarenite, Early Pleistocene, S.W. Australia.



Figs. 45-47. *Nassarius(Niotha)nuttalli* (Ludbrook). 45. Holotype WAM No. 69.658; 20.1 mm. 46. Specimen from Roe Plains, Madura Dist., E.Pleistocene of W.Australia; 19.7 mm. 47. Specimen from bore at Jandakot, 420 m, E. Pleistocene of W.Australia; 19.2 mm and 21.2 mm respectively.

STRATIGRAPHIC RANGE. Early Pleistocene, S.W. Australia.

Type specimen. The holotype of *N.nuttalli* is in the WAM No. 69.658, dimensions 20.1 x 9.8 mm (Fig. 45).

Material examined. Early Pleistocene: Bore at Jandakot, 420 m, Perth Basin, S.W. Australia; Pit N. of Hampton Repeater Tower, Roe Plains, Madura district, S.W. Australia, carbonate sand (both WAM; AIM).

The general shape, formation of columellar callus and absence of spiral sculpture and nodules in *N.nuttalli* are far in excess of subspecific diagnostic differences, and I concur with G. W. Kendrick *(in litt.)* in assigning full specific status to *N.nuttalli*.

Nassarius (Niotha) sp. (Figs. 48,49)

This is a new species characterized by the thin, wide-spaced axial ribs which have a tendency to become obsolete, absence of spiral sculpture and thin, circular and spreading columellar callus.

The new species will be described in due course by Mr. G.W. Kendrick, Western Australian Museum, Perth. The specimens I have examined came from a Nu-Mix concrete bore and Paulik's Bore in the Jandakot area of the Perth Basin, Early Pleistocene of S.W. Australia (Figs. 48,49).

Figs. 48,49. *Nassarius(Niotha)* sp. 48. Nu-Mix concrete bore at Macglaglan Str., Jandakot, E.Pleistocene of W.Australia, WAM No.77.1015; 11.7 mm. 49. Paulik's bore, 41.9 - 42.1 m, Jandakot, E.Pleistocene of W.Australia; 8.0 mm.

Subgenus **Zeuxis** H. & A. Adams, 1853

Zeuxis H. & A. Adams, 1853, Gen.Rec.Moll. 1:119. Type species by SD (Cossmann, 1901) *Buccinum taenia* Gmelin, 1791 = *B.olivaceum* Bruguiere, 1789. Recent, Indo-Pacific.

1881. *Venassa* v.Martens, Conch.Mittheil. 2:109. Type species by M *Nassa (Venassa) pulvinaris* v.Martens, 1881 = malformed *Zeuxis* sp. Recent, Indonesia.
1969. *Glabrinassa* Shuto, Mem.Fac.Sci.Kyushu Univ.(D), Geol. 19(1):145. Type species by OD *G.amycliforma* Shuto, 1969 = *Nassa compta* A. Adams, 1852. Neogene of the Philippines.
1976. *Bathynassa* Ladd, Nautilus 90(4):131. Type species by OD *B.bolangoi* Ladd, 1976. Pleistocene, New Hebrides.

Species of the subgenus *Zeuxis* are separated from species of *Niotha* by the narrower, more clearly defined columellar callus and a columella which is denticulate along its entire length.

Three living and two fossil species are found in Australia but species of *Zeuxis* are absent from New Zealand.

Nassarius (Zeuxis) dorsatus (Roeding,1798) (Figs. 50-53)

1780. *"Buccinum laeve sinuatum"* Chemnitz, Neues syst.Conchyl.-Cab. 4:59, pl.125, figs.1194,1195 (non binom.).
1791. *Buccinum trifasciatum* Gmelin, Syst.Nat. ed.13:3489 (ref. to Gualtieri, pl.44,fig.A) (non Gmelin,1791, p.3477).
1798. *Buccinum dorsatum* Roeding, Mus.Bolten. p.111 (ref. to Chemnitz, op. cit., figs. 1194,1195).
1827. *Nassa livida* Gray in King, Narrat.Surv.Australia 2:App.p.484; 1917 Odhner, Kungl.Svenska Vet.Handl. 52:11,51.
1830. *Buccinum nitidulum* Cuvier, Le Regne Animal ed.2, 3:98, footnote (ref. to Chemnitz, op.cit., 4:1194,1195) [non Linnaeus,1758].
1834. *Buccinum unicolorum* Kiener, Spéc.gén.icon.coq.viv. 9:60,pl.19,fig.69.
1852. *Nassa laevis* Moerch, Cat.Conchyl.Yoldi 1:77 (ref. to Chemnitz, op.cit., figs.1194,1195); 1853 H. & A. Adams, Gen.Rec.Moll. 1:116.3: pl.12,figs. 7,7c. (non Fischer v.Waldheim,1807).
1853. *Nassa unicolorata* Reeve, Conch.Icon. 8:pl.3,fig.17.
1853. *Nassa rutilans* Reeve, *ibid.* 8:pl.22,fig.147; 1932 Tomlin, Proc.Malac. Soc.Lond. 20:97.
1877. *Nassa(Alectrion)rutilans* Reeve, Brazier, Proc.Linn.Soc.N.S.W. 1:180.
1879. *Nassa trifasciata* (Gmelin), Marrat, J.Conch. 2:78.
1880. *Nassa nitidula* Marrat, Prop.new forms gen.*Nassa* p.38.
1884. *Nassa unicolor* E.A.Smith, Rept.Zool.coll.H.M.S."Alert", p.49.
1906. *Bullia cinerea* Preston, Proc.Malac.Soc.Lond. 7:34,textfig.
1907. *Arcularia dorsata* Bolten, Hedley, Proc.Linn.Soc.N.S.W. 33:509; 1912 Verco, Trans. R.Soc.Sth.Australia 36:204; 1916 Hedley, J.R.Soc. W. Australia 1:61.
1955. *Nassarius dorsatus* Roeding, Cotton, R.Soc.Sth.Austral.Malac.Sect. No.7:2,fig.16.
1961. *Nassarius(Zeuxis)dorsatus* (Roeding), Rippingale & McMichael, Queensl. & Gt.Barrier reef shells p.105,pl.13,fig.24; 1972 Cernohorsky, Rec. Auckland Inst.Mus.9:168, figs.115,116 only.
1966. *Tarazeuxis unicolorus* (Kiener), Habe & Kosuge,Shells world col. 2:62,pl.22,fig.30.
1971. *Zeuxis dorsatus* (Roeding), Wilson & Gillett, Austral.Shells p.102, pl.66,figs.8,8a,b.

Shell up to 40.0 mm in length, solid and frequently polished, teleoconch of 7-8 weakly convex whorls, protoconch of 2-2½ smooth, small embryonic whorls; first 3-4 post-embryonic whorls with slender axial riblets and small sutural nodules, later whorls smooth, base of body whorl with 10-12 close-set oblique cords. Outer lip prominently

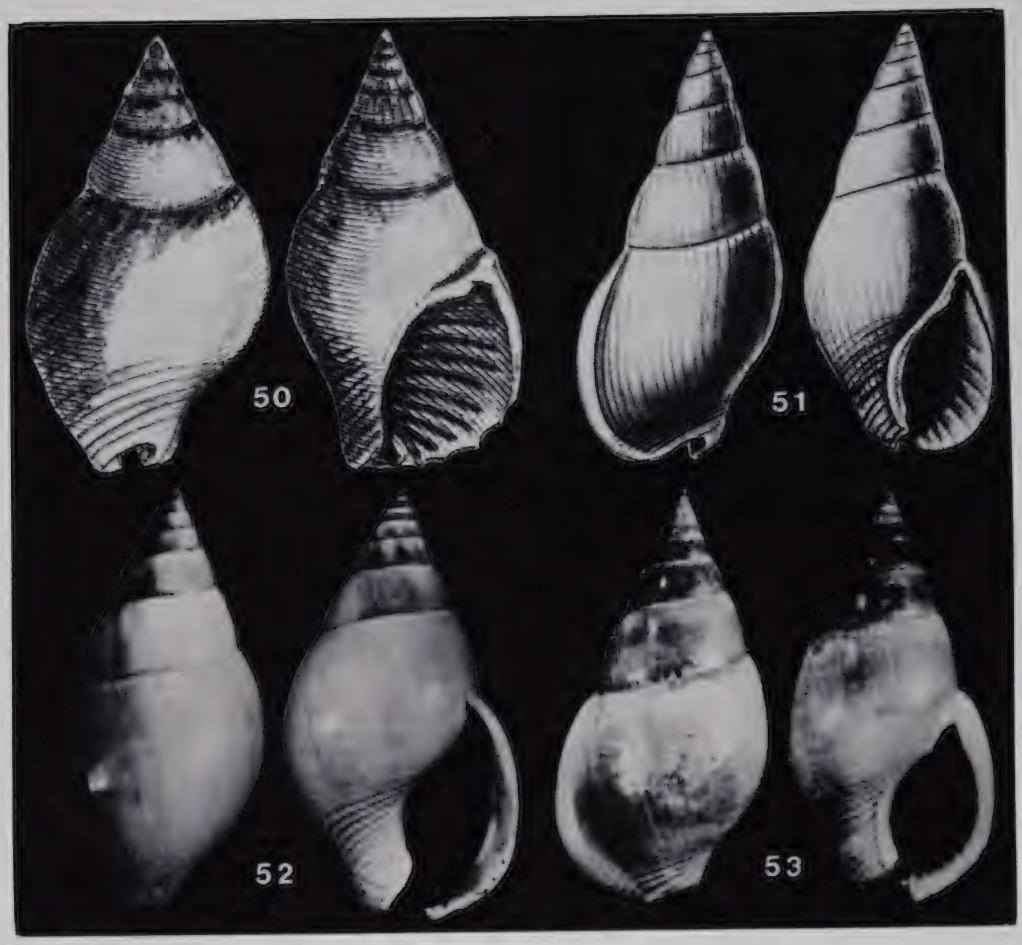
variced, interior edge with lirate denticles, base of outer lip with 4-6 sharp denticles, columellar callus narrow and defined and with a row of 10-14 small, regular denticles. Variable in colour, steel-blue, bluish-white to dark brown, some individuals with dilacerated transverse bands, columella and edge of outer lip white, interior of aperture purple-brown. Operculum yellowish-brown and usually with simple margins.

TYPE LOCALITY. None *(trifasciatum; dorsatum; nitidulum; unicolorum; laevis);* Australia *(livida);* Nth.Australia *(unicolorata);* New Zealand = error *(rutilans);* ? Ceylon = error *(cinerea).* Reeve (1853-54) was the first author to quote "North Australia" as the locality for the species, and Port Darwin, Northern Territory, Australia, is here designated as the type locality.

DISTRIBUTION. From Exmouth Gulf, Western Australia along the North Australian coast to the southern coast of West Irian and southward to Moreton Bay, Sth.Queensland. On reefs and mud-flats, 0-55 m. Verco's (1912) record of the species from Geraldton and specimens in the AMS labelled "Geographe Bay" require confirmation. Wilson & Gillett (1971) give Exmouth Gulf as the most southern West Australian occurrence and this is confirmed by the southernmost record from the Onslow area (Exmouth Gulf) seen in Museums.

Type specimens. Chemnitz's or Roeding's type-specimens of *N.dorsatus* can no longer be located, and I designate the specimen depicted by Chemnitz (1780) on plate 125, figs. 1194,1195, as the illustrated lectotype of *N.dorsatus* (Fig. 50). Three syntypes of *N.rutilans* are in the BMNH (no number), and the illustrated syntype, dimensions 26.2 x 13.0 mm, is here selected as the lectotype (Fig. 53). The immature holotype of *Bullia cinerea* is in the BMNH (no number), dimensions 29.5 x 15.7 mm (Fig. 52).

Material examined. Western Australia: Geographe Bay (AMS — requires confirmation); Onslow area; Beagle Bay; Pt.Samson near Port Hedland (all AMS); Port Hedland (NMV); Broome (AIM; AMS); Sunday I, King Sound near Derby (AMS); Yampi Sound (AIM); Port George; Augustus I (both NMV); Northern Territory: Port Darwin (AMS, AIM); Melvill I, off Darwin (AMS); Casuarina Beach, Darwin (NMV); Grose I, W.S.W. of Darwin; Berkeley Bay, E. side of Port Essington; Cayman's Creek, Port Essington; Elcho Pt. and Crocker I, Arnhem Land; Coburg Peninsula (all AMS); Queensland: Beach at Edward River mouth, W. coast Cape York Peninsula; Karumba, Gulf of Carpentaria; 7 km from Norman River, Karumba; Cape York Peninsula; N.E. Herald Cay, Coral Sea; Trinity Bay near Cairns (all AMS); Cooya Beach, N. of Port Douglas (coll.Gardner); Yorkey's Knob, 19 km N. of Cairns; Cairns (both AIM); Cardwell (NMV); Lucinda Pt.; (coll. Powell); Cockle Bay, Magnetic I (coll.Gardner); Point Marlowe near Townsville (AIM); Townsville (AMS); Gloucester I (AIM); Bowen; Slade Pt. (both NMV); Dingo Beach (AIM); Lindeman I, N. of Mackay (AMS); Newry I, N. of Mackay (USNM); Eimeo, N. of Mackay (AMS); Yeppoon (NZGS); Ross Creek, Yeppoon (coll.Gardner); Clontarf (NZGS); Calliope River estuary, Port Curtis; Port Curtis, off Gladstone (both AMS); Keppell Bay (coll.Powell); Shoal Bay Rocks, Keppell Bay; Mast Head I, Capricorn group; Somerset; (all AMS); Round Hill Heads (coll.Powell); Hervey Bay (USNM); Nudgee Beach, Moreton Bay; Scarborough, Moreton Bay (both AMS); Hammock Hills (NMV); S. W. Irian: Merauke (AMS).



Figs. 50-53. *Nassarius(Zeuxis)dorsatus* (Roeding). 50. Illustrated lectotype from Chemnitz (1780, pl.125,figs.1194,1195). 51. Type-figure of *Buccinum unicolorum* Kiener (from Kiener, 1834,pl.19,fig.69). 52. Immature holotype of *Bullia cinerea* Preston, BMNH (no No.); 29.5 mm. 53. Lectotype of *Nassa rutilans* Reeve, BMNH (no No.); 26.6 mm.

After re-examination of more extensive material of *N.dorsatus* the concept of the species has been revised. Although Chemnitz (1780) gave "Tranquebar" (India) as the locality and the species has occasionally been reported from Indian Ocean localities, it appears that *N. dorsatus* is endemic to the northern coast of Australia and southern coast of Papua New Guinea, according to material available at this time.

Nassarius (Zeuxis) pyrrhus (Menke, 1843) (Figs. 54-58)

1822. *Buccinum fasciatum* Lamarck, Hist.nat.anim.s.vert. 7:211; 1833 Quoy & Gaimard, Voy.L'Astrolabe 2:445,pl.32,figs.18-21 (non Mueller,1774).

1834. *Buccinum jacksonianum* Kiener, Spéc.gén.icon.coq.viv. 9:64,pl.19, fig.73 (non Quoy & Gaimard,1833).

1843. *Buccinum pyrrhum* Menke, Moll.Nov.Hollandiae p.21 (nom.subst.pro *B.fasciatum* Lamarck,1822).

1853. *Nassa(Tritia)dealbata* A.Adams, Proc.Zool.Soc.Lond. Pt.19:112.
1853. *Nassa fasciata* Lamarck, Reeve, Conch.Icon.8:pl.6,fig.40; 1898 Pritchard & Gatliff, Proc.R.Soc.Victoria 11:278.
1913. *Alectrion fasciata* Lamarck, Suter, Man.N.Z.Moll. p.397; 1915 Suter, *ibid.*, Atlas, pl.45,fig.16; 1927 Finlay, Trans.Proc.N.Z.Inst. 57:418 (excluded from N.Z. fauna).
1915. *Alectrion victorianus* Iredale, Trans.Proc.N.Z. Inst. 47:467 (nom. subst.pro *Buccinum fasciatum* Lamarck,1822).
1916. *Arcularia victoriana* Iredale, Hedley, J.R.Soc.W.Australia 1:61; 1925 Reath, J.R. Soc.W.Australia 11(6):39.
1921. *Nassarius victorianus* Iredale, May, Check-list Moll.Tasmania p.82; 1923 May, Illust.Ind.Tasman.shells p.81,pl.38,fig.18; 1932 Cotton & Godfrey, Sth.Austral.Nat. 13:98,pl.1,fig.6.
1936. *Nassarius pyrrhus* (Menke),Gabriel, Victorian Seashells p.12,textfig. 1974 Poore & Rainer, Austral.J.Mar.& Freshw.Res. 25:378; 1975 Cernohorsky, Rec.Auckland Inst.Mus.12:222,figs.28,29; 1980 Roberts & Wells,Rec.W.Austral.Mus. 8(3):346.
1938. *Niotha pyrrhus* (Menke), Cotton & Godfrey, Malac.Soc.Sth.Australia Publ.No.1:24; 1955 Cotton, R.Soc.Sth.Austral.Malac.Sect.No.7:2,fig.4; 1962 Macpherson & Gabriel, Mar.Moll.Victoria Handb. No.2:196,textfig. 233; 1966 Hodgkin et al. W.Austral.Nat.Club.Hanb. No.9:43; 1978 Ludbrook, Geol.Surv.W.Austral.Bull. 125:151.
1972. *Nassarius(Zeuxis)pyrrhus* (Menke), Cernohorsky, Rec.Auckland Inst. Mus. 9:171,fig.121 (shell), fig.142 (radula).

Shell up to 22.0 mm in length, teleoconch of 6-7 weakly convex whorls, protoconch of 2-2½ small, smooth embryonic whorls; sculptured with slender and angulate axial ribs which number 14-20 on last two whorls; ribs are crossed by coarse spiral cords which divide the ribs into nodules, sutural nodules separated from ribs by a shallow presutural groove. Columella calloused and irregularly denticulate along entire length, rows of denticles frequently doubled; denticles on outer lip confined to margin, interior of aperture smooth. White to pinkish-white in colour, ornamented with a dark rusty-brown band on the spire whorls and 2 bands on the body whorl; some specimens brown with yellowish-white spiral bands. Columella brown or mauve but white on parietal wall, aperture white, narrowly banded with brown, interior of siphonal canal flushed with violet in fresh specimens.

Rachidians of radula with 13-15 denticles, ovate accessory plate present, lateral teeth bicuspid.

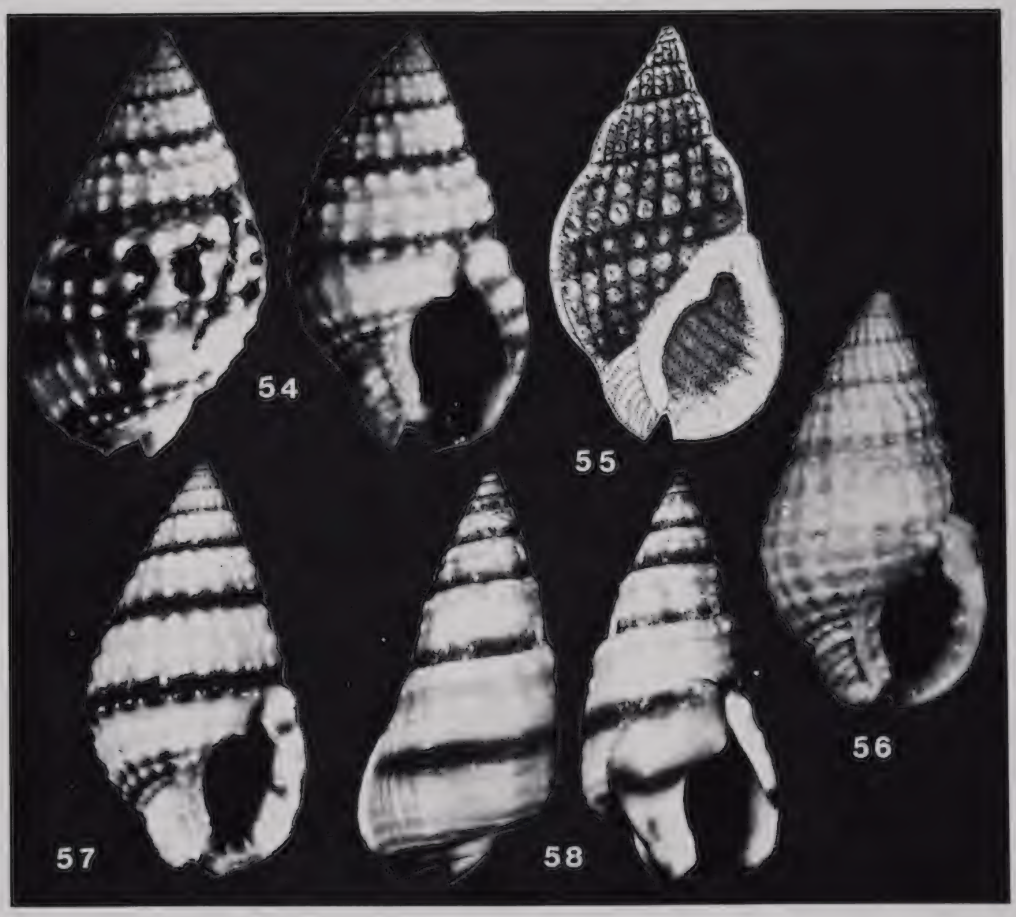
TYPE LOCALITY. New Holland = Australia *(fasciatum; pyrrhum; victorianus);* Damaguete, Negros I, Philippines = error *(dealbata).*

DISTRIBUTION. From Victoria to Tasmania and along the southern coast of Australia to Rottnest I, Western Australia. Marine and estuarine, on sand and mud flats, from 0-18 m. The two records of "Port Douglas, Queensland" and "Port Jackson, New South Wales" in the AMS are both suspect since it is doubtful that the species really lives in those regions. Suter's (1913-15) record of "Bay of Islands, New Zealand" is also erroneous.

Type specimens. The probable syntypes of *Buccinum fasciatum,* which are also the syntypes of *Nassarius pyrrhus* and *Alectrion victorianus,* are in the MHNG, No. 1296/7 and one of these questionable syntypes, dimensions 18.2 x 10.6 mm, is here illustrated (Fig. 54). According to Mermod (Dr Cl.Vaucher, *in litt.*), the extant specimens in the Lamarck collection could be type material since Lamarck owned 17 specimens ranging in size

18.0-20.0 mm, and several of the extant "syntypes" fall within this size-range. However, at this stage it is impossible to determine which of the specimens were actually Lamarck's types. The worn holotype of *N.dealbatus* is in the BMNH No. 197331, dimensions 14.0 x 7.4 mm (Fig. 56).

Material examined. Victoria: Point Welshpool (AMS); Wilson's Promontory (NMV); Western Port, 9-18 m (ZMC); Newhaven (NMV); Western Port (AMS); Cowes (coll. Powell); Phillip I (NMV); Point Leo (AMS); Sandringham (coll. Powell); Melbourne (NZGS); Port Phillip (AMS); Rosebud (NMV); Sorrento (AMS); Port Fairy (NZGS); Portland Bay (AMS); Tasmania: Fisher I, Bass Str. (NMV); Thunder & Lightning Bay, Barren I; Circular Head (both TMAG); W. side of Cape Portland (AMS); Stanley; Green's



Figs. 54-58. *Nassarius(Zeuxis)pyrrhus* (Menke). 54. Probable syntype of *Buccinum fasciatum* Lamarck, *B.pyrrhum* Menke and *Alectrion victorianus* Iredale, MHNG No. 1296/7/9; *c*. 18.2 mm (photo G.Dajoz, MHNG). 55. Typefigure of *Buccinum jacksonianum* Kiener (from Kiener, 1834,pl.19,fig.73). 56. Holotype of *Nassa dealbata* A.Adams, BMNH No. 197331; 14.0 mm. 57. Specimen from Semaphore, Sth.Australia; 19.5 mm. 58. Malformed specimen from Parsons's Bay, S.E.Tasmania, TMAG No. E-5317; 20.0 mm.

Beach; near mouth of Inglis River, Wynyard; Samphire I near Flinders I; Long Pt., Flinders I; Coles Bay; Oyster Bay, Maria I; Marion Bay; Bream Creek (all TMAG); Hobart (AMS); Pittwater (TMAG); Sandy Bay (AMS); Eaglehawk Neck; Rockeby; Pirate's Bay; Simmonds Bay in Barnes Bay; Bruni I (all TMAG); Bridport, S. of Bruni I (AMS); Bay of Islands, S. Bruni I; Cooks Beach; White Beach; W. Ulverstone (all TMAG); South Australia: Beachport (NZGS); Glenelg; Holdfast Bay (both AMS); Aldinga (NZGS); Port Milacowie (AMS); Adelaide (NZGS); Outer Harbour, Adelaide; Henley Beach; *c.* 3 km S. of Normanville, S. of Adelaide; Rocky Pt., Kangaroo I (all AMS); Pt.Collinson, Gaskoine Bay (NMV); Penneshaw, N. E. Kangaroo I (AMS); Larg's Bay, St.Vincent Gulf (AMS; NMV); Port Vincent (AMS); Port Augusta (AIM); Tickera, via Kadina (AMS); N. of Stansbury, Yorke's Peninsula (coll.Powell); Pondalowie Bay, Yorke's Peninsula; Tumby Bay; Port Lincoln; near Striking Creek, Port Lincoln; Pt.Brown, Smoky Bay; St.Peters I, S. of Ceduna (all AMS); Semaphore (TMAG); Western Australia: Israelite Bay (NMV); Middleton Beach, King George's Sound; Emu Pt.; (both AMS); Albany (AMS; NMV; NZGS); South Pt., E. of Albany; Flinders Bay near Cape Leeuwin; Mississippi Bay, 48 km E. of Esperance (all AMS); Geographe Bay (AMS; NMV); Garden I (NMV); Fremantle (AMS); Rottnest I (NMV; AMS); Peppermint Grove Beach (coll.Marrow); Perth (NMV); Irwin River; between Thursday I and Cowaramup Bay; Dunsborough (all AMS).

Fossil record: Pliocene: S.W. side of Bunga Creek, Princess Highway, Upper Jemmy's Pt., E. of Lakes Entrance, Victoria, Kalimnan (AMS); Pleistocene: Moine River mouth, Victoria (NZGS); Eyre highway, 104 km E. of Madura, W.Australia; salt-lake on shore, Rottnest I (both AMS).

The species is common on sand-flats from the mid-tide to low tide level. Malformed specimens also have been recorded, and the specimen from Parson's Bay, S.E. Tasmania (Fig. 58) has a drawn out appearance with altered whorls and a splayed out columellar callus and edentulous columella.

Nassarius (Zeuxis) subcopiosus (Ludbrook, 1958) (Figs. 59, 60)

1958. *Hinia(Reticunassa)subcopiosa* Ludbrook, Trans.R.Soc.Sth.Australia 81:64,pl.3,fig.1.
1970. *Reticunassa subcopiosa* (Ludbrook),Darragh, Mem.Nat.Mus.Victoria 31:197.
1978. *Nassarius(Reticunassa)subcopiosa* (Ludbrook), Geol.Surv.W.Austral.Bull.125:150, pl.17,figs.1,2.

Shell up to 9.0 mm in length, similar in shape to *N.pyrrhus*, teleoconch of 4¾-5 weakly convex whorls, protoconch of 3-3¼ smooth embryonic whorls. Sculptured with slender axial ribs which become thinner and more crowded towards the back of the outer lip, and number 16-17 on the penultimate and 17-19 on the body whorl. Spiral sculpture consists of spiral cords which override axial ribs and form small, low nodules at the point of intersection; spirals number 4 on the penultimate and 9-10 on the body whorl, siphonal fasciole with additional 5-6 crowded oblique cords. Outer lip weakly variced, interior with 8 lirate denticles, columellar callus narrow, well defined and with 6-7 denticles and a parietal denticle.

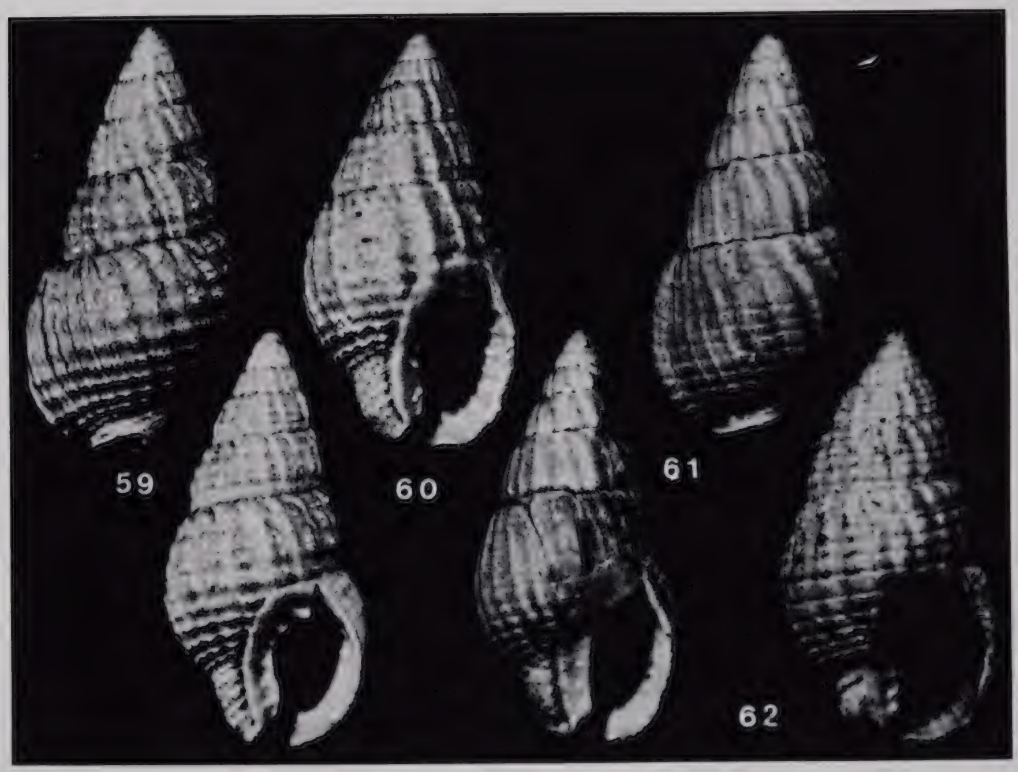
TYPE LOCALITY. Hindmarsh Bore, Dry Creek Sands, 137-148 m, L.Pliocene of Sth.Australia.

STRATIGRAPHIC RANGE. Pliocene -Pleistocene of southern Australia.

Type specimens. The holotype of *N.subcopiosus* is in the SAM No. F-15403, dimensions 8.4 x 4.0 mm (Fig. 59).

Material examined. L.Pliocene: Hindmarsh Bore, Dry Creek Sands, 137-148 m, Sth.Australia (AMS; NZGS); Pleistocene: Roe Calcarenite, Western Eucla Basin, W.Australia (Ludbrook, 1978).

The species is very similar to *N.pyrrhus* (Menke) and clearly belongs to the same genus-group rather than *Reticunassa* Iredale, 1936 (= *Hima* Leach in Gray, 1852). It differs from *N.pyrrhus* in the less numerous mature whorls and more numerous embryonic whorls, smaller size and stronger, thicker columellar callus above the parietal wall. *N.subcopiosus* is even closer to *N.spiraliscabrus* (Chapman & Gabriel, 1914) from the Victorian Pliocene, and differs only in the stronger, more nodulose spiral sculpture, a character which may be subject to variation.



Figs 59-62. 59,60. *Nassarius(Zeuxis)subcopiosus* (Ludbrook). 59. Holotype SAM No.F-15403; 8.4 mm. 60. Specimen from Hindmarsh bore, Dry Creek Sands, L.Pliocene of Sth.Australia; 8.1 mm. 61,62. *N.(Z.)spiraliscabrus* (Chapman & Gabriel). 61. Holotype NMV No.F-12491; 10.3 mm. 62. Specimen intermediate between *N.spiraliscabrus* and *N.subcopiosus* from Rondo's No.1 bore, Thornlie, Ascote beds, Pliocene of W.Australia; 7.3 mm.

Nassarius (Zeuxis) spiraliscabrus (Chapman & Gabriel, 1914) (Figs. 61,62)

1914. *Nassa spiraliscabra* Chapman & Gabriel, Proc.R.Soc.Victoria. N.S. 26(2):325, pl.28,fig.34.
1928. *Nassarius spiraliscabrus* (Chapman & Gabriel), Chapman, Rec.Geol.Surv. Victoria 5:164.
1958. *Hinia(Reticunassa)spiraliscabra* (Chapman & Gabriel), Ludbrook, Trans.R.Soc.Sth.Australia 81:65,pl.3,fig.2.
1970. *Reticunassa spiraliscarbra (sic)* (Chapman & Gabriel), Darragh, Mem.Nat.Mus.Victoria 31:195.

Shell up to 10.5 mm in length, elongate-ovate, teleoconch of 4½-5 weakly convex whorls, protoconch of 3-3¼ smooth embryonic whorls. Sculptured with irregular but mostly slender axial ribs which number from 19-22 on the penultimate and from 18-19 on the body whorl; spiral sculpture consists of weak or distinct spiral grooves which number from 2-5 on the penultimate and from 6-8 on the body whorl plus 4 spiral cords, siphonal fasciole with 5-7 oblique cords. Outer lip variced, interior with 9-10 lirate denticles, columellar callus well defined and with 4-7 denticles apart from parietal denticle, siphonal notch distinct.

TYPE LOCALITY. Mallee Bore No.8, 199-209 feet (61-64m), Pliocene of Victoria.

STRATIGRAPHIC RANGE. Lower Pliocene (Kalimnan) of Victoria, Sth.Australia and Western Australia.

Type specimens. The holotype of *N.(Z.) spiraliscabrus* is in the NMV No. P-12491, dimensions 10.3 x 5.2 mm (Fig. 61).

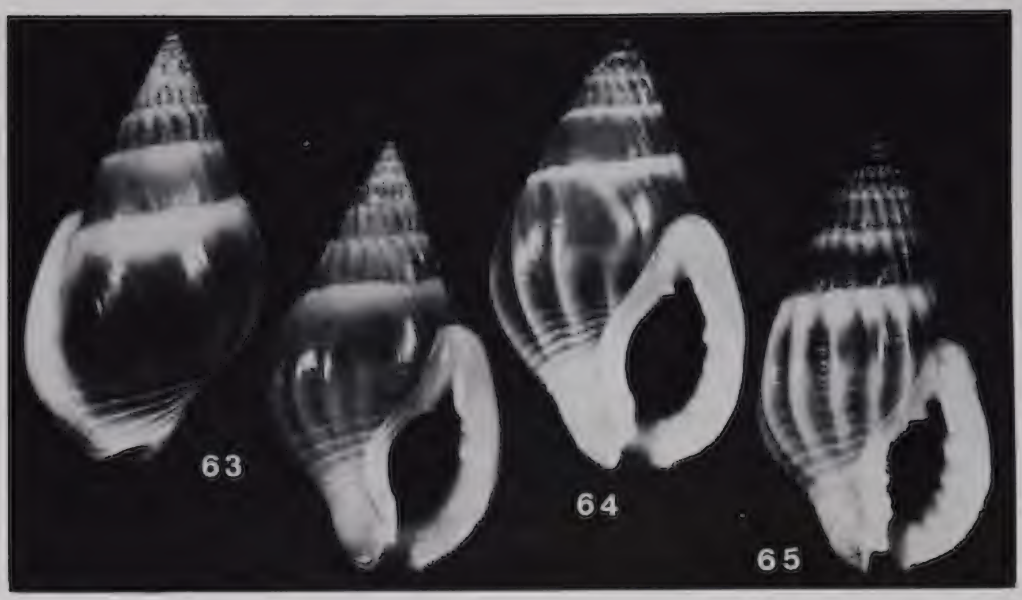
Material examined. Pliocene: Rando's No.1 Bore, 11 Spring Road, Thornlie, Ascot beds, Western Australia (WAM). Reported from the Sorrento Bore at 302 m, Mornington Peninsula, Victoria (Chapman 1928) and Weymouth and Abbatoir's Bore, Sth.Australia (Ludbrook 1958).

The species is similar to *N.subcopiosus* (Ludbrook), but differs in the more subdued and occasionally almost obsolete spiral sculpture. A specimen from the Ascot beds of Western Australia has more prominent spiral grooves which give an indication of nodules upon the axial ribs (Fig. 62).

Nassarius (Zeuxis) fraudator Cernohorsky, 1980 (Figs. 63-65)

1980. *Nassarius(Zeuxis)fraudator* Cernohorsky, Rec.Auckland Inst.Mus. 17:141, figs.12-15 (shell), fig.16 (radula), fig.17 (operculum).

Shell up to 18.0 mm in length, elongate-ovate and solid, teleoconch of 6-7 flat-sided whorls, protoconch incomplete in adults and very worn in juveniles. Early spire whorls sculptured with strong, angulate axial ribs which are weakly indented at sutures to form a row of not very prominent satural nodules, last 2 whorls extremely variable in sculpture, penultimate whorl either smooth or with up to 15 axial ribs, ventral side of body whorl with 4-7 strong, sinuous axial ribs, dorsal, side without ribs; sutures of last two whorls with a low, ill-defined sutural girdle, varix of outer lip very strong and with short spiral threads in the depression of the varix. Spiral sculpture usually absent but occasionally fine spiral striae may be present, base of shell with 4-5 cords, siphonal fasciole with 5-8 cords. Interior of aperture with 6-8 angulate lirae, columella distinctly calloused and with 4-9 round nodules and a parietal denticle. Variable in colour, usually dark brown, tan or grey,



Figs 63-65. *Nassarius(Zeuxis)fraudator* Cernohorsky. 63. Holotype AMS No. C-114468; 17.5 mm. 64. Paratype from Hall Sound, Papua New Guinea, AMS No. C-54863; 16.0 mm. 65. Paratype from Darwin, Northern Territory; 12.9 mm.

sutures and varix white to cream, occasional specimens off-white with only broad brown bands on last 2 whorls, aperture white but brown deep in interior. Operculum yellowish-brown, margins simple or very obsoletely serrate.

Rachidians of radula with 11 slender denticles, central denticle larger, accessory lateral plate absent, lateral teeth simple and bicuspid.

TYPE LOCALITY. Somerset Bay, Cape York Peninsula, Nth.Queensland, Australia.

DISTRIBUTION. From Exmouth Gulf, Western Australia to the southern coast of Papua New Guinea and Cape York, Queensland. On sand-flats, intertidal.

Type specimens. The holotype of *N.(Z.) fraudator* is in the AMS No.C-114468, dimensions 17.5 x 9.3 mm (Fig. 63).

Material examined. Queensland: Saibai village, Saibai I, Torres Str.; Mud Bay, Cape York; Somerset Bay, Cape York; near Bamaga, N.W. Cape York Peninsula (all AMS); Northern Territory: Darwin; Rose River Mission, Arnhem Land, Gulf of Carpentaria (both AMS); Western Australia: S.E. of Exmouth homestead, S. of Learmouth, Exmouth Gulf (AMS);Broome (AIM; coll.Powell); Barred Creek, N. of Broome (AIM;NMV;coll. Whitehead); Willy Willy Creek (NMV). Papua New Guinea: Hall Sound, N.W. of Port Moresby (AMS).

The species has been known since last century but has usually been confused with either *N.monile* (Kiener) (= *N.distortus* A.Adams), or the Indo-Malayan *N.jacksonianus* (Quoy & Gaimard).

Subgenus **Gussonea** Monterosato, 1912

Gussonea Monterosato,1912, J. Conchyl. 59(4):295. Type species by M *Buccinum tinei* Maravigna,1840. Recent, Mediterranean.

1853. *Amycla* H. & A.Adams, Gen.Rec.Moll. 1:186. Type species by SD (Bucquoy, Dautzenberg & Dollfus, 1882) *Buccinum corniculum* Olivi, 1792. Recent, Mediterranean (non *Amycla* Rafinesque, 1815; nec Doubleday, 1849).

1918. *Amyclina* Iredale,Proc.Malac.Soc.Lond. 13:28,31. Type species (Art. 67(i) of ICZN) *Buccinum corniculum* Olivi, 1792 (nom.subst.pro *Amycla* H. & A. Adams, 1853).

1972. *Fackia* Nordsieck, Mioz.Moll.Miste-Winterswijk p.78. Type species by OD *Nassa facki* Koenen, 1872. Miocene of Europe.

Nassarius (Gussonea) wilsoni (Ludbrook) is the only Australian species tentatively assigned to the subgenus *Gussonea*. Both *Gussonea* and *Telasco* H. & A. Adams, 1853 (type-species *Buccinum cuvierii* Payraudeau, 1826, from the Mediterranean) are closely similar except that in *N.corniculum* the animal lacks metapodial tentacles and in species of *Telasco* the axial ribs continue almost to the penultimate whorl whereas the spire whorls are smooth in *Gussonea*. The chronological priority of *Gussonea* over *Amyclina* has been discussed by Cernohorsky (1977).

Nassarius (Gussonea) wilsoni (Ludbrook, 1978) [nom.praeocc.] (Figs. 66,67)

1978. *Amyclina wilsoni* Ludbrook, Geol.Surv.W.Austral.Bull 125:150,pl.17, figs 3,4 (non *Nassa wilsoni* C.B. Adams, 1852 = *Nassarius*).

Shell up to 14.0 mm in length, elongate-ovate, teleoconch of 5 convex whorls, protoconch of 1¾-2 smooth, slightly globose embryonic whorls. Smooth except for up to 12 thin axial ribs on the dorsal side of the outer lip and 7-8 spiral cords on the lower third of the body whorl and an additional 5-6 oblique cords on the siphonal fasciole; sutures impressed or narrowly canaliculate, imperceptibly crenulate and bordered by a fine sutural groove, well preserved specimens with numerous, slightly arcuate longitudinal macrostriae on last two whorls. Outer lip varied, interior of aperture with 7-8 weak denticles, columellar callus narrow but well defined, columella with 7-8 weak denticles which sometimes extend along entire margin, parietal denticle distinct.

Figs. 66,67. *Nassarius (Gussonea) wilsoni* (Ludbrook) (nom.praeocc.). 66. Holotype WAM No. 70.29b; 12.9 mm. 67. Roe Plains, Madura Dist., E.Pleistocene of W.Australia. WAM: 13.3 mm.

TYPE LOCALITY. St.4434-FL6, Hampton Microwave Repeater Tower, 31°57'57''S & 127°34'45''E, Roe Calcarenite, Eucla Basin, E.Pleistocene of S.W.Australia.

STRATIGRAPHIC RANGE. Only recorded from Early Pleistocene deposits of the Eucla Basin, S.W. Australia, Pleistocene.

Type specimens. The holotype of *N.(G.) wilsoni* is in the WAM No.70.29b, dimensions 12.9 x 7.0 mm (Fig. 66).

Material examined. Early Pleistocene: 51 km E. of Madura; *c*. 3.2 km S. of Hampton radio station, off Nullabor Plain Road, S.W. Australia (both AMS); Pit 1.5 km N. of Hampton Microwave repeater tower, Roe Plains, Madura district, S.W. Australia, carbonate sand (WAM; AIM).

Amyclina wilsoni Ludbrook, 1978, is a secondary homonym of the living *Nassa wilsoni* C.B. Adams, 1852, from the Pacific side of Panama and Central America. Both clearly belong to the genus *Nassarius* and a substitute name will have to be proposed for the homonymous *wilsoni* Ludbrook.

Subgenus **Hima** Leach in Gray, 1852

Hima Leach in Gray, 1852, Moll.Brittan.Synop. p.122. Type species by SD (Marwick,1931) *Buccinum minutum* Pennant, 1777 = *B.incrassatum* Stroem, 1768. Recent, Mediterranean.
1852. *Tritonella* A.Adams, Proc. Zool.Soc.Lond. Pt.19:111 (non Swainson, 1839).
1931. *Mirua* Marwick, N.Z.Geol.Surv.Palaeont.Bull. No.13:115. Type species by OD *Nassa socialis* Hutton, 1886 = *Nassarius tatei socialis* (Hutton). Miocene of New Zealand.
1936. *Reticunassa* Iredale, Rec.Austral.Mus. 19:322. Type species by OD *Nassa paupera* Gould, 1850. Recent, Indo-Pacific.

The homonymy and type designations of this group have been discussed in detail by Cernohorsky (1972). One Recent and 1 fossil species are recorded from Australia and 1 fossil subspecies from New Zealand.

Nassarius (Hima) tatei tatei (Tenison-Woods,1879) (Figs. 68-70)

1879. *Nassa tatei* Tenison-Woods, Proc.Linn.Soc.N.S.W. 3:230,pl.21,fig.13; 1880 Tenison-Woods, Proc.Linn.Soc.N.S.W. 4:20,pl.2,fig.2; 1887 Hutton, Proc.Linn.Soc.N.S.W. (2) 1:481; 1888 Tate, Trans.Proc.R.Soc.Sth.Australia 10:170,pl.12,fig.9; 1897 Harris, Cat.Tert.Moll.Brit.Mus.Pt.1:169.
1928. *Nassarius tatei* T.W., Chapman, Rec.Geol.Surv. Victoria 5(1):164.
1970. *Reticunassa tatei* (Tenison-Woods), Darragh, Mem.Nat.Mus.Victoria 31:200.

Shell up to 9.00 mm in length, ovate to elongate-ovate, teleoconch of 3-4¾ convex whorls, protoconch of 3¼-3¾ smooth and somewhat swollen embryonic whorls, sutures impressed. Sculptured with slender axial ribs which number 13-19 on the penultimate and 10-20 on body whorl; spiral sculpture consists of moderately crisp spiral threads which cross over ribs and occasionally produce small, low nodules on the summits; spiral threads number 4-8 on penultimate and 13-19 on body whorl. Outer lip varied and with 8-13 small denticles, columellar callus moderately narrow and well defined, columella with a basal denticle and occasionally an adjoining small denticle, remainder smooth, parietal denticle usually present, siphonal fasciole with 5-8 oblique cords.

TYPE LOCALITY. Lower beds at Muddy Creek, Victoria, Middle Miocene.

STRATIGRAPHIC RANGE. Lower Miocene — Upper Pliocene, Sth.Australia to Western Australia.

Type specimens. Forty-three syntypes of *N.tatei* are in the AMS No.F-1771, and the illustrated syntype, dimensions 7.3 x 3.6 mm, is here selected as the lectotype (Fig. 68).

Material examined. Miocene: Nullarbor Plain and 51 km E. of Madura, Western Australia (AMS); River Murray cliffs near Morgan, Victoria; Fyansford, Victoria; Schnapper Pt., Port Phillip, Victoria; Gellibrand, Victoria (all Tate coll., SAM); S.E. end of Gibson Beach, S.E. of Port Campbell, Gellibrand marl, Victoria; Altona, Newport form., Victoria; Fossil Beach, Balcombe Bay, Mornington, Victoria; Mt.Eliza Beach cliff face, Victoria; Schnapper Pt., Hobson's Bay, Victoria; Mornington, Victoria; Grice's Creek, Port Phillip, Victoria; Murray River, Muddy Creek, Hamilton, Victoria; Clifton Bank, Hamilton, Victoria (all AMS). Pliocene: Grange Burn Coquina near Hamilton, Victoria (AMS); Hallet's Cove sandstone, St.Australia (Tate coll., SAM).

Harris (1897) commented on the species exceeding variability in shape and sculpture, as an examination of a large series left him in no doubt that all the diverse forms belonged to one and the same species. A similar high degree of variability can be observed in the closely related Indo-Pacific species *N.(H.) pauperus* (Gould).

Nassarius (Hima) tatei socialis (Hutton,1886) (Figs. 71-75)

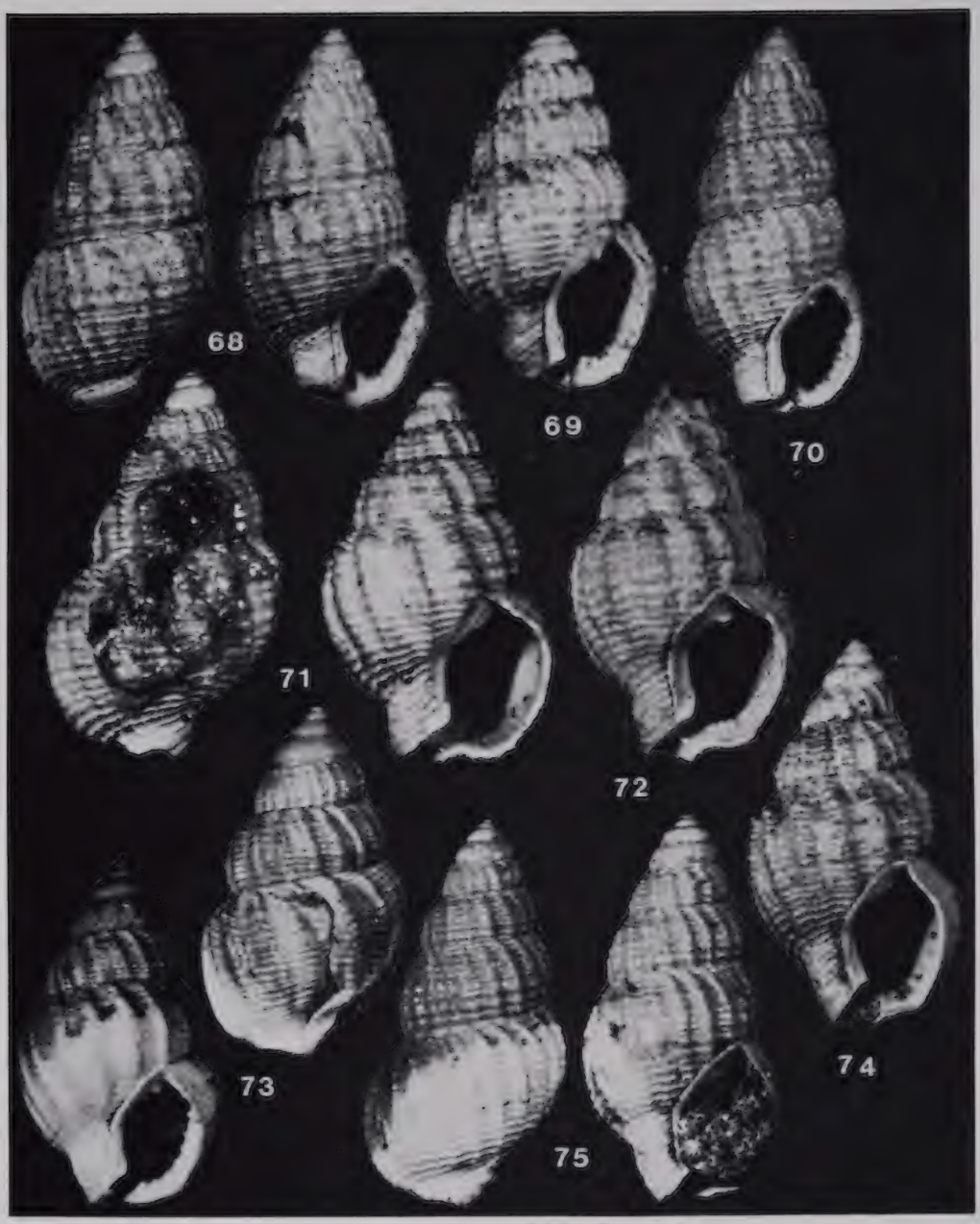
1877. *Nassa(Uzita)compta* Hutton,Trans.Proc.N.Z.Inst. 9:596,pl.16,fig.9 (non A.Adams, 1852).
1886. *Nassa socialis* Hutton, Trans.Proc.N.Z.Inst. 18:333; 1887 Hutton, Proc.Linn.Soc.N.S.W. (2), 1:210 (nom.subst.pro *N.compta* Hutton,1877).
1915. *Alectrion socialis* (Hutton), Suter, N.Z.Palaeont.Bull. 3:27.
1931. *Hima(Mirua)socialis* (Hutton), Marwick,N.Z.Palaeont.Bull. No.13:115, pl.12,fig.227; 1966 Fleming, D.S.I.R. Bull.No.173,pl.110,fig.1348.
1938. *Hima(Mirua)* aff. *socialis* (Hutton), Powell, Trans.Proc.R.Soc.N.Z. 68:375.
1939. *Hima(Mirua)separabilis* Laws,Trans.Proc.R.Soc.N.Z. 68:496,pl.65,fig.52; 1966 Fleming, D.S.I.R. Bull. No.173:63.

The subspecies is almost inseparable from the Australian Miocene *N.tatei tatei* and displays the same high degree of variability in shape and number and prominence of axial ribs and spiral cords. Some New Zealand individuals have a subangulate body whorl which is on rare occasions minutely echinate and constricted at the sutures, features not observed in Australian populations of *N.tatei*.

TYPE LOCALITY. White Rock River, Canterbury (Awamoan), Lower Miocene of New Zealand *(socialis);* Pakaurangi Pt., Kaipara Harbour, (Otaian), L.Miocene of New Zealand *(separabilis)*.

STRATIGRAPHIC RANGE. Otaian, L.Miocene — Tongaporutuan, U.Miocene of New Zealand.

Type specimens. Three syntypes of *N.(H.)tatei socialis* are in the OMD No. C.5434, and the illustrated syntype, dimensions 7.4 x 4.2 mm, is here selected as the lectotype (Fig. 71). The holotype of *N.separabilis* is in the NZGS No.TM-1282, dimensions 5.5 x 3.4 mm (Fig. 73).



Figs. 68-75. 68-70. *Nassarius(Hima)tatei tatei* (Tenison-Woods). 68. Lectotype AMS No. F-1771; 7.3 mm. 69. Paralectotype; 6.8 mm. 70. Slender specimen from Fossil Beach, Balcombe Bay, Mornington, Victoria, Miocene of Australia, AMS No. C-100704; 8.5 mm. 71-75. *N.(H.) tatei socialis* (Hutton). 71. Lectotype OMD No. C-5434; 7.4 mm. 72. Paralectotype OMD No. C-5434; 6.6+ mm. 73. Holotype of *Nassa separabilis* Laws, NZGS No. TM-1282; 5.5 mm. 74. Paratype of *N.separabilis* Laws; 6.8 mm. 75. Slender paratype of *N.separabilis* Laws; 6.9 mm.

Material examined. Miocene: Pakaurangi Pt., Kaipara Harbour; Bluecliffs, Sth.Canterbury; Holme Station, Pareora (all AIM); Pareora, S. of Timaru (AMS); Dyer's Run, Waihao; White Rock River, Canterbury; Sutherlands, Sth. Canterbury; Mt.Harris, Canterbury; Opihi River, Sth.Canterbury; Ashburton River, Canterbury; Target Gully, Oamaru, Otago; Rifle Butts, Oamaru; Pukeuri, Oamaru; Ardgowan shell-pit, Oamaru; Awamoa Creek, Otago; Loc. 5 and 6, Awakino; Clifden, Southland, E.side of A and C, bands 6B, 6C and 8A; Muddy Creek, Gisborne, 61 m above sandstone (all AIM).

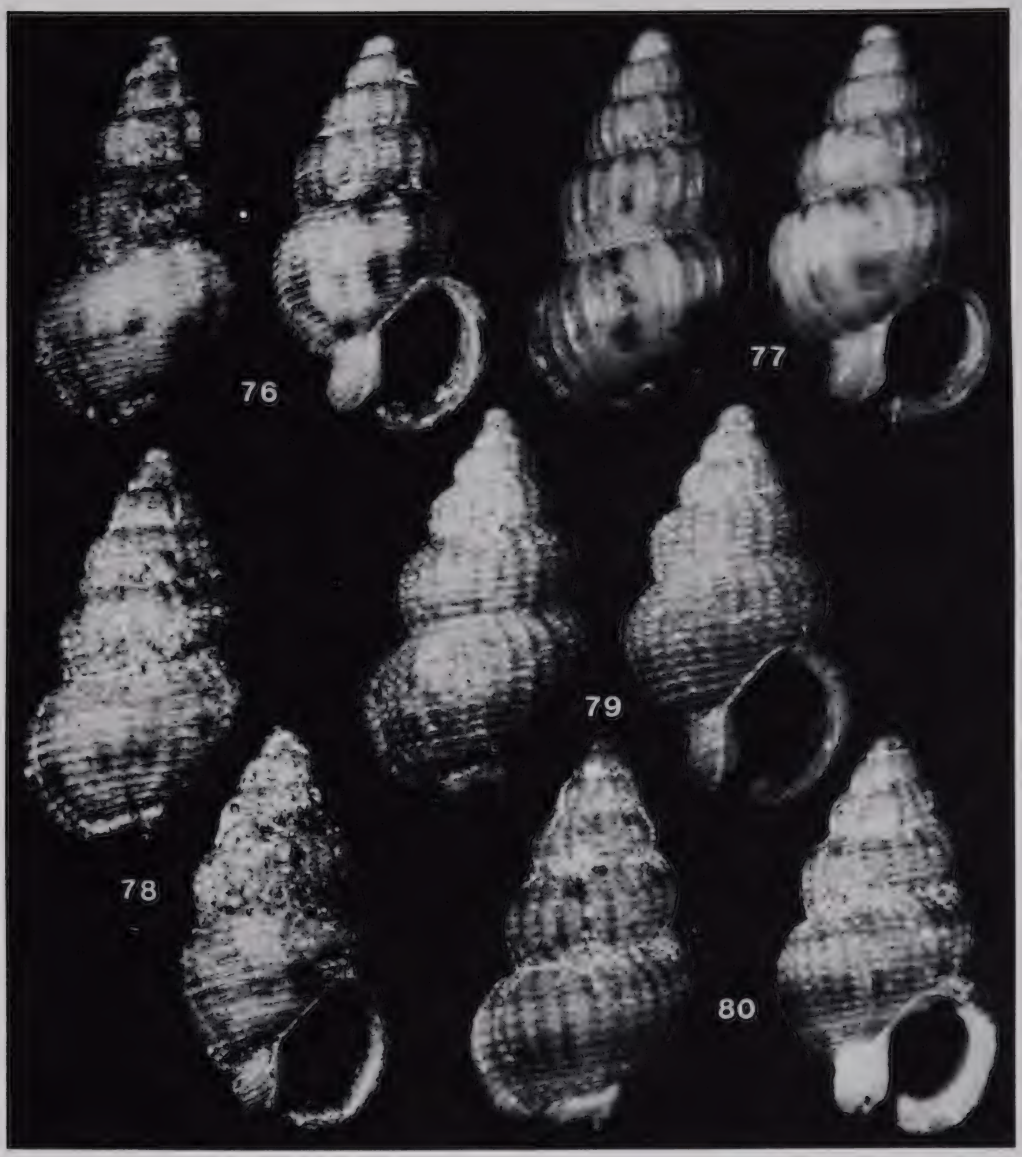
Having examined over 800 specimens, it became apparent that some diagnostic characters used to separate *N.separabilis* from *N.socialis*, e.g. more numerous axial ribs and spiral striae in *N.separabilis*, were distributed at random in populations from various localities and subject to considerable variation. At Pakaurangi Pt., both forms are represented, the form at Bluecliffs resembles *N.separabilis* but is broader and more solid and the same form also occurs at the younger Clifden beds, bands 6B and 8A, while specimens at Clifden 6C are coarsely sculptured and have a minutely echinate presutural ramp and constricted sutures. At Dyer's Run the *socialis* and Bluecliff forms are represented, at White Rock River only typical *socialis* were seen, some specimens from Bluecliffs had the appearance of the *separabilis* form and at Target Gully a mixture of all forms could be found. One of the paratypes of *N.separabilis* is the elongate form of the species (Fig. 75) and closely resembles specimens of *N.tatei* in the Tenison-Woods and Tate collections, while another paratype of *N.separabilis* is the *socialis* form of the species.

N.(H.) tatei socialis (Hutton) is retained as a weak subspecies. Hutton (1887) himself synonymized his *socialis* with the earlier *tatei* Tenison-Woods.

Nassarius (Hima) mobilis (Hedley & May,1908) (Figs. 76-80)

1908. *Arcularia mobilis* Hedley & May, Rec.Austral.Mus. 7:121,pl.23,fig.16.
1908. *Arcularia mobilis* var. *costata* Hedley & May, Rec.Austral.Mus. 7:121, pl.23,fig.17 (non S.V.Wood,1848; nec A.Adams,1852).
1921. *Nassarius mobilis* Hedley & May, May, Check-list Moll.Tasmania p.82; 1923 May, Illust.Ind.Tasman.shells p.81,pl.38,fig.13.
1932. *Nassarius verconis* Cotton & Godfrey, Sth.Austral.Nat. 13:94,pl.1,fig.7.
1936. *Reticunassa mobilis plankta* Iredale, Rec.Austral.Mus. 19:322; 1962 Iredale & McMichael, Austral.Mus.Mem. No.11:67.
1938. *Reticunassa verconis* Cotton & Godfrey, Cotton, Malac.Soc.Sth.Austral. Publ. No.1:24; 1955 Cotton, R.Soc.Sth.Austral.Malac.Sect. No.7:2,fig.9.
1962. *Reticunassa compacta benthalis* Gabriel, Mem.Nat.Mus.Victoria No.25:189, textfig. 1; 1962 Macpherson & Gabriel, Nat.Mus.Victoria Handb. No.2:195.

Shell up to 8.0 mm in length, elongate-ovate, moderately thin, teleoconch of 3¾-4¼ convex, inflated whorls which occasionally become roundly subangulate on presutural ramp, protoconch of 1¾-2 smooth, globose embryonic whorls. Sculptured with thin axial ribs which number 14-21 on penultimate and 12-23 on body whorl, axial ribs frequently becoming obsolete on last two whorls; spiral sculpture consisting of crisp, overriding spiral threads which number 8-10 on penultimate and 15-18 on body whorl, spiral threads occasionally obsolete, interspaces between spirals macroscopically axially striate. Outer lip varied and convex, interior with 6-13 minute or obsolete denticles, columella narrowly calloused, base with 1-2 small denticles, parietal denticle weak and blunt, fasciole twisted to left and with 7-10 crowded cords. White to cream in colour, spire whorls with 2 and body whorl with 3 ♂lacerated orange-brown to reddish-brown bands sometimes only visible as wide-spaced spots.



Figs. 76-80. *Nassarius(Hima)mobilis* (Hedley & May). 76. Holotype AMS No. C-28972; 7.2 mm. 77. Holotype of *Arcularia mobilis* var. *costata* Hedley & May, AMS No. C-28973; 6.8 mm (smooth form). 78. Holotype of *Recticunassa mobilis plankta* Iredale, AMS No. C-60714; 7.5 mm. 79. Holotype of *Nassarius Verconis* Cotton & Godfrey, SAM No. D-10186; 7.1 mm. 80. Holotype of *Reticunassa compacta benthalis* Gabriel, NMV No. F-20838; 7.5 mm.

TYPE LOCALITY. 7 miles (11 km) E. of Cape Pillar, Tasmania, Australia, 100 fathoms (183 m) [*mobilis* and *costata*]; Beachport, Sth.Australia, 150 fathoms (275 m) [*verconis*]; off Newcastle Heads, New South Wales, 40 fathoms (73 m) [*plankta*]; off Cape Everard, Sth.Australia, 65 fathoms (119 m) [*benthalis*].

DISTRIBUTION. From Crowdy Head, New South Wales to Victoria, Tasmania and South Australia. Subtidal, 37-667 m.

Type specimens. The holotype of *N.(H.) mobilis* is in the AMS No.C-28972, dimensions 7.2 x 4.1 mm (Fig. 76) together with the holotype of the smooth form *costata* No. C-28973, dimensions 6.8 x 3.7 mm (Fig. 77). The holotype of *N.verconis* is in the SAM No. D-10186, dimensions 7.1 x 4.0 mm (Fig. 79), the holotype of *N.mobilis plankta* is in the AMS No. C-60714, dimensions 7.5 x 3.9 mm (Fig. 78), and the holotype of *N.compacta benthalis* is in the NMV No. F-20838, dimensions 7.5 x 4.3 mm (Fig. 80).

Material examined. New South Wales: 18 km W. of Crowdy Heads, 91 m; off Newcastle Heads, 73 m; 32 km S.E. of Twofold Bay, 37°26'S & 150°15'E, 149 m (all AMS); Victoria: off Gabo I, 55-146 m; 40 km S. of Cape Everard, 38°15'S & 149°12'E, 315 m; between Cape Howe and Lakes Entrance, 38°13'S & 149°06'E, 146-158 m; S. of Mt.Cann, 101-183 m (all AMS); off Lakes Entrance, 37 m (NMV); Tasmania: 32 km E. of Babel I, Furneaux group, Bass Str., 120 m; N. of Great Oyster Bay, 41°46'S & 148°31'E, 113 m; off Cape Forrestier, 42°10'S & 148°34'E, 205 m; 40 km N.E. of Beaching Bay, Maria I, 42°27'S & 148°17'E, 82 m (all AMS); Thouin Bay, 73 m (TMAG); Cape Pillar, 183 m; N.E. of Cape Pillar, 92-110 m; W. of Port Dorey, 43°22'S & 145°44'E, 144 m; S.E. of S.W. Cape, 43°38'S & 146°08'E, 119 m (all AMS); South Australia: Beachport, 275 m (SAM); off Cape Martin, Beachport, 667 m; off Cape Jaffa, 237 m; between Cape Jaffa & Kangaroo I, 75-155 m (all AMS).

Subgenus **Cryptonassarius** Cernohorsky, 1975

Cryptonassarius Cernohorsky, 1975, Rec.Auckland Inst.Mus. 12:218. Type species by OD *Nassa ephamilla* Watson,1882. Recent, Australia and New Zealand.

Nassarius ephamillus has usually been placed in the subgenus *Hima*, but it lacks the typically fusiform, solid shape, thick varied outer lip, short denticled aperture, parietal fold and distinct siphonal canal of *Hima* species.

Cryptonassarius is monotypic at the present time, containing the deep-water Austral-Neozelanic *N.ephamillus* (Watson).

Nassarius (Cryptonassarius) ephamillus (Watson,1882) (Figs. 81-83)

1882. *Nassa ephamilla* Watson, J.Linn.Soc.Lond. 16:370; 1883 Watson, N.Z. J. Science 1:442; 1884 Hutton, Trans.Proc.N.Z.Inst. 16:233.

1886. *Nassa(Tritia)ephamilla* Watson, Rept.Sci.Res.Voy.H.M.S. "Challenger", Zool. 15:187,pl.11,figs.9a-d.

1886. *Nassa dissimilis* Watson, Rept.Sci.Res.Voy.H.M.S."Challenger",Zool. 15:175,pl.17,fig.6.

1906. *Nassa jacksonensis* "Quoy & Gaimard", Hedley, Rec.Austral.Mus. 6(3): 214 (non *Buccinum jacksonianum* Quoy & Gaimard,1833 = *Nassarius*).

1907. *Arcularia dipsacoides* Hedley, Rec.Aust.Mus. 6(5):359,pl.67,fig.21; 1907 Verco, Trans. R.Soc.Sth.Australia 31:214,pl.29,fig.13 (radula).
1913. *Alectrion ephamilla* Watson, Suter, Man.N.Z.Moll. p.396; 1915 Suter, *ibid.*, Atlas, pl.191,fig.2.
1913. *Alectrion dissimilis* Watson, Suter, Man.N.Z.Moll. p.396; 1915 Suter, *ibid.*, Atlas, pl.19,fig.1.
1918. *Nassarius dipsacoides* Hedley, J.Proc.R.Soc.N.S.W. 51:M88; 1932 Cotton & Godfrey, Sth.Austral.Nat. 13(3):94.
1938. *Reticunassa flindersi* Cotton & Godfrey, Rec.Austral.Mus. 6(2):204, pl.17,fig.8; 1938 Cotton & Godfrey, Malac.Soc.Sth.Austral.Publ.No.1: 24; 1955 Cotton, R.Soc.Sth.Australal.Malac.Sect. No.7:2,fig.10.
1951. *Nassarius ephamillus* (Watson), Fleming, Trans.Proc.R.Soc.N.Z. 79(1): 137; 1956 Dell, Dominion Mus.Bull. No.18:109,pl.13,figs.127,128; 1968 Ponder, Rec.Dominion Mus. 6(4):31,pl.1,fig.15 (radula),fig.16 (operculum).
1962. *Nassarius dissimilis* (Watson),Clarke,Nat.Mus.Canada Bull. No.181:26.
1962. *Reticunassa dipsacoides* (Hedley),Iredale & McMichael, Austral.Mus. Mem. No.11:67.
1975. *Nassarius(Cryptonassarius)ephamillus* (Watson),Cernohorsky, Rec. Auckland Inst.Mus. 12:219,figs.13-22.

Shell up to 19.0 mm in length but frequently smaller, elongate-ovate, teleoconch of 3-4½ weakly or distinctly angulate whorls, protoconch of 3¼-4 smooth, rounded embryonic whorls; sculptured with axial ribs and overriding spiral threads which produce a granulose sculpture, penultimate whorl with 15-26 axial ribs and 3-5 spiral cords, body whorl with 17-30 ribs and 8-12 cords. Outer lip moderately thin, convex, varix lacking, aperture edentulous, columella concave and calloused in very mature specimens but callus small, narrow and not spreading, distal end of columella with a thin, elevated ridge, siphonal canal short. White to cream in colour under a thin translucent, straw-yellow to light brown periostracum. Operculum elongate-ovate, margins weakly corrugate through overlapping growth-rings.

Rachidians of radula narrow and concave with *c.* 10 small denticles, lateral accessory plate absent, lateral teeth biscuspid, cutting edge of inward pointing cusp with or without minute denticles (Verco 1907; Ponder 1968).

Figs. 81-83. *Nassarius(Cryptonassarius)ephamillus* (Watson). 81. Specimen from Chatham Rise, New Zealand, 585 m, NMNZ; 19.0 mm. 82. Specimen from Taiaroa Heads, Otago, New Zealand, 549 m; 13.0 mm. 83. Holotype of *N.dipsacoides* Hedley, AMS No. C-26624; 11.9 mm.

TYPE LOCALITY. E. of East Cape, 37°34'S & 179°22'E, 700 fathoms (1281 m), blue mud, 40°F (4.5°C), New Zealand *(ephamillus);* off New Zealand, 40°28'S & 177°43'E, 1100 fathoms (2013 m) [*dissimilis*]; 35 miles (56 km) E. of Sydney, New South Wales, Australia, 800 fathoms (1464 m) [*dipsacoides*]; Cape Jaffa, South Australia, 300 fathoms (549 m) [*flindersi*].

DISTRIBUTION. From the Chatham Is to mainland New Zealand, New South Wales along the eastern coast of Australia to Victoria, Sth.Australia, S.W. Australia and Tasmania. Subtidal, 146-2013 m, in blue mud, grey ooze, silt and bryozoa.

Type specimens. Five syntypes of *N.(C.) ephamillus* are in the BMNH No. 1887. 2.9.666-70, and the largest syntype, dimensions 13.6 x 8.3 mm (Cernohorsky 1975, fig.14) is here selected as the lectotype; the badly decorticated holotype of *N.dissimilis* is also in the BMNH No.1887.2.9.591., dimensions 13.5 x 9.5 mm. The holotype of *N.dipsacoides* is in the AMS No. C-26624, dimensions 11.9 x 7.2 mm (Fig. 83), and the holotype of *N.flindersi* is in the SAM No. D-13298, dimensions 8.8 x 5.1 mm.

Material examined. New South Wales: 56 km off Broken Bay, 33°32'S & 152°00'E, 823 m; E. of Broken Bay, 33°26'S & 152°11'E, 822-877 m; E. of Sydney, 34°03'S & 151°37'E, 295 m; 32 km N. E. of Wollongong, 34°15'S & 151°28'E, 457-484 m; off Wollongong, 34°27'S & 151°27'E, 1200 m and 34°22'S & 151°23'E, 439 m; E. of Brush I, 35°31'S & 150°46'E, 439; E.N.E. of Bateman's Bay, 35°37'S & 150°45'E, 384 m; E. of Ulladulla, 35°31'S & 150°48'E, 549 m; E. of Bermagui, 36°27'S & 150°19'E, 354-383 m; 32 km E. of Kiama, 36°37'S & 151°16'E, 503 m; 40 km E. of Twofold Bay, 37°27'S & 150°17'E, 294-304 m (all AMS); Victoria: S.E. of Gabo I, 37°48'S & 150°18'E, 484 m; S. of Gabo I, 366 m; 48 km S. of Cape Everard, 366 m; 61 km S. of Tamboon Inlet, off Gippsland, 38°24'S & 149°09'E, 988 m; between Cape Howe and Lakes Entrance, 38°13'S & 149°06'E, 146-158 m; midway between Cape Everard and Flinders I, Bass Str., 38°59'S & 148°34'E, 426 m (all AMS); Tasmania: off Cape Naturaliste, 40°51'S & 148°46'E, 399 m; 15 km E.S.E. of Cape Mistaken, Maria I, 42°02'S & 148°21'E, 695-713 m; 15 km N.E. of Tasman I, 43°12'S & 148°14'E, 571 m; S. of Hobart, 43°48'S & 147°50'E, 720-755 m (all AMS); South Australia: off Cape Martin, Beachport, 667 m (AMS); Cape Jaffa, 549 m (SAM); Encounter Bay, 36°00'S & 138°21'E, 450 m (ZMC); Western Australia: reported from 193 km W. of Eucla, 549 m (Cotton & Godfrey 1932). New Zealand: E. of East Cape, 37°34'S & 179°22'E, 1281 m; E. of Cape Turnagain, 40°28'S & 177°43'E, 2013 m (both BMNH); S.E. of Cape Palliser, Cook Str., 41°42'S & 175°29'E, 946-951 m; off Palliser Bay, Cook Str., 1007 m; S.W. of Cape Palliser, Cook Str., 41°44'S & 175°12'E, 732 m (both NMNZ); S.W. of Cape Foulwind, Tasman Sea, 42°10'S & 170°10'E, 610 m (coll.Powell); Chatham Rise, 43°35.5'S & 177°59'E, 586 m; Chatham Rise, 43°40'S & 179°28'E, 403 m; S.E. of Pitt I, 44°35.5'S & 176°04'W, 604 m (all NMNZ); N.E. of Taiaroa Heads, Otago, 45°45.6'S & 171°05'E, 549 m (NMNZ; coll. Powell).

For a detailed discussion of the species see Cernohorsky (1975).

SUBFAMILY CYLLENINAE Bellardi, 1882

Genus **Cyllene** Gray in Griffith and Pidgeon, 1834

Cyllene Gray in Griffith & Pidgeon, 1834, Anim.Kingd.Cuvier,Moll.&Radiata, 12:597. Type species by M *C.owenii* Gray in Griffith & Pidgeon, 1834. Recent, West Africa.

1924. *Radulphus* Iredale, Proc.Linn.Soc.N.S.W. 49:270. Type species by M *R.royanus* Iredale, 1924. Recent, S.E. Australia.

Species of *Cyllene* differ from other Nassariinae in their somewhat *Phos*-like appearance, the often prominently calloused and lirate columella and the presence of a sutural groove similar to the Olividae, where the posterior of the outer lip joins the body whorl.

Species of *Cyllene* live in the Indo-Pacific and West Africa, and to date are not known from other regions. Two species are known from Australia, one from the temperate region of S.E. Australia and the other from subtropical Western Australia. No species have been recorded from New Zealand.

Cyllene lactea A.Adams & Angas, 1864 (Fig. 84)

1864. *Cyllene lactea* A.Adams & Angas, Proc.Zool.Soc.Lond. for 1863:422; 1867 Angas, Proc.Zool.Soc.Lond.p.191; 1901 Hedley, Proc.Linn.Soc.N.S.W. 26(1): 19, pl.2,fig.10; 1903 Hedley, Mem.Austral.Mus. 4:375; 1918 Hedley, J.Proc.R.Soc.N.S.W. 51:M87.

1962. *Radulphus lacteus* Adams & Angas, Iredale & McMichael, Austral.Mus.Mem. No.11:73.

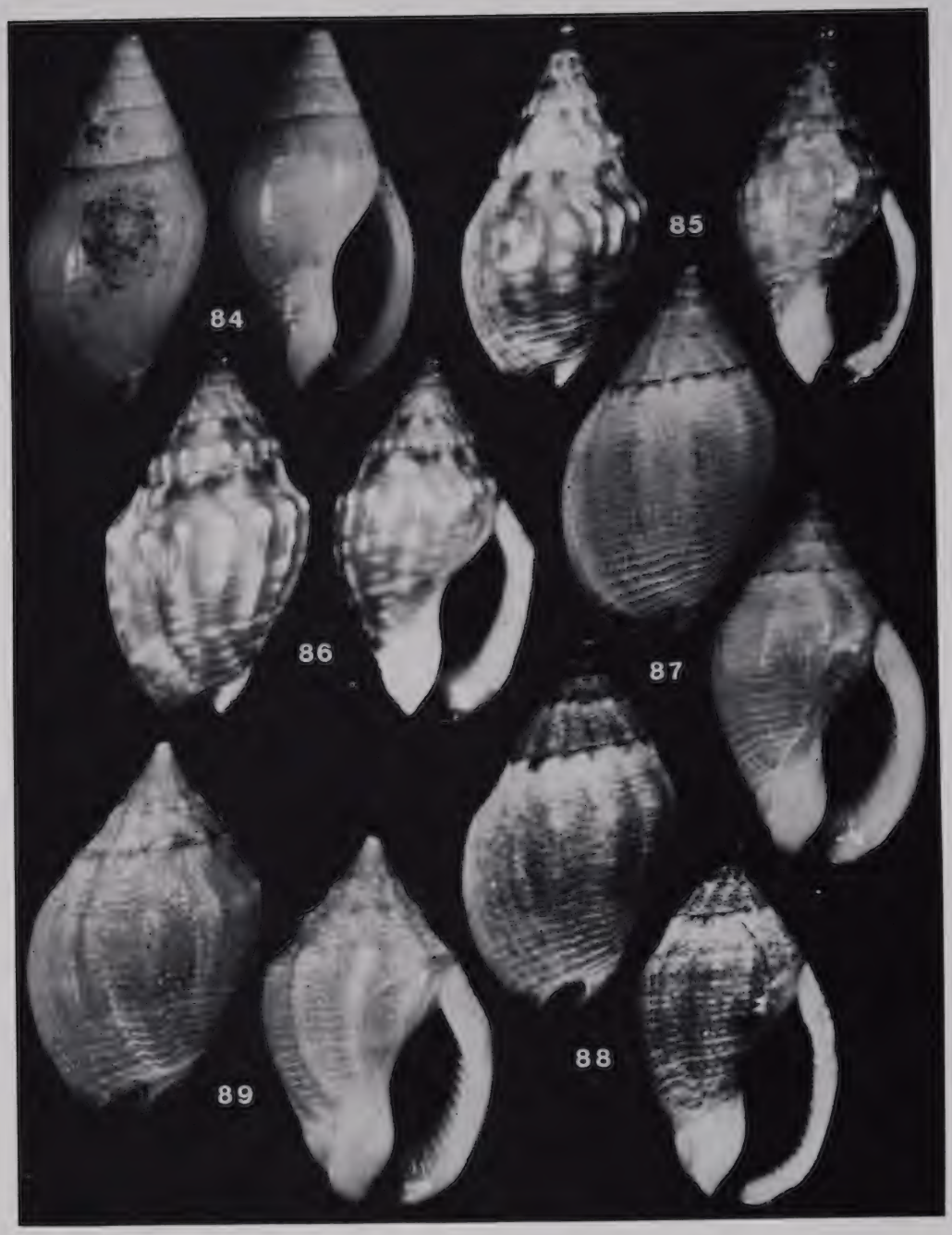
Shell up to 15.0 mm in length, elongate-ovate, teleoconch of 4¾-5 concavo-convex whorls, protoconch of 2 smooth, glassy embryonic whorls. Sculptured with axial ribs, ribs concavo-convex posteriorly to the sutures, 15-17 on penultimate whorl but absent or extremely weak on body whorl; spiral sculpture consists of spiral striae numbering 4-5 on penultimate whorl, shoulder of body whorl with 4-6 spiral cords, centre smooth, base of shell with up to 8-10 spirals. Outer lip thickened, interior of aperture finely striate, columella calloused, callus spreading on lower half of body whorl and with 7-9 oblique lirae, siphonal notch prominent. Fawn to light brown in colour and marbled with pale brown, sutures occasionally with brown spots.

TYPE LOCALITY. Port Stephens, New South Wales, Australia. According to Hedley (1901), Brazier identified the types as coming from inner North Head, Sydney Harbour, 8 fathoms (15 m).

DISTRIBUTION. Apparently endemic to New South Wales, Australia. Subtidal, 7-49 m.

Type specimens. Two faded syntypes of *C.lactea* are in the BMNH No. 1870.10.26.86., and the illustrated syntype (Fig. 84), dimensions 13.7 x 6.7 mm, is here selected as the lectotype.

Material examined.New South Wales: Port Jackson (coll.Powell); Six mile Beach, Port Stephens; off Green Pt., Watson's Bay, 7 m; Black Rock, Richmond River; Shelley Beach, Angourie; Woogoolga; Sydney Harbour; Long reef, Collaroy; Inner North Head, Port Jackson; Newcastle Bight, 44-49 m; Halliday's Pt., N. of Forster (all AMS); Simpson's Beach, Port Hacking (coll.Marrow).



Figs. 84-89. 84. *Cyllene lactea* Adams & Angas. Lectotype BMNH No. 1870.10.26.86.; 13.7 mm. 85.86. *C.royana* (Iredale). 85. Holotype AMS No. C-74642; 15.1 mm. 86. Broad specimen from off Lakes Entrance, Victoria, 37 m; 13.7 mm. 87-89. *C.sulcata* Sowerby. 87. Lectotype BMNH No. 1980106; 14.5 mm. 88.89. Specimens from Broome, W.Australia. 88. Slender form, 12.7 mm. 89. Broad, strongly ribbed form; 13.4 mm.

Cyllene royana (Iredale, 1924) (Figs. 85,86,90)

1924. *Radulphus royanus* Iredale, Proc.Linn.Soc.N.S.W. 49(3):270,pl.34, fig.8; 1962 Iredale & McMichael, Austral.Mus.Mem. No.11:73; 1962 Gabriel, Mem.Nat.Mus.Victoria No.25:188.

1962. *Radulphus royana* Iredale, Macpherson & Gabriel, Mar.Moll. Victoria Handb. No.2:196.

The species is very similar to *C.lactea* Adams & Angas, and differs only in the coarser sculpture which is mainly characterized by the presence of 14-15 axial ribs on the body whorl and which become angulate on the presutural ramp. The colouring is also similar with a white and brown marbling pattern and brown spots at sutures.

TYPE LOCALITY. Twofold Bay, New South Wales, Australia, 15-25 fathoms (27-46 m).

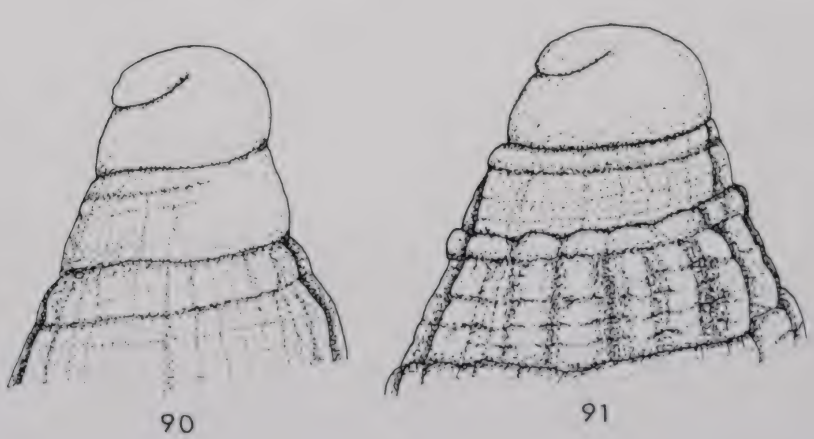
DISTRIBUTION. Recorded only from New South Wales and Victoria, Australia. Subtidal, 27-50 m.

Type specimens. The holotype of *C.royana* is in the AMS No. C-74642, dimensions 15.1 x 7.5 mm (Fig. 85).

Material examined. New South Wales: Middle Harbour, Sydney; Broken Bay; Ocean Beach (all AMS); Twofold Bay, 27-33 m (AMS; NMV); Victoria: off Lakes Entrance, 37 m (NMV; coll.Marrow).

Fossil record: Holocene: Bore at Tomaga, New South Wales, 16-17 m depth (AMS).

The species is rare and the range of variability is unknown. It is possible, however, that *C.royana* is only a sculptural variant of *C.lactea*, and *C.royana* is only tentatively accepted as a good species.



Figs. 90,91. Protoconchs. 90. *Cyllene royana* (Iredale). 91. *C.sulcata* Sowerby.

Cyllene sulcata Sowerby, 1859 (Figs. 87-89,91)

1854. *Cyllene sulcata* H. & A.Adams, Gen.Rec.Moll. 1:125 *(nom.nud.)*.
1859. *Cyllene sulcata* Sowerby, Thes.Conchyl. 3:77,pl.217,figs.10,11.

Shell up to 15.0 mm in length, elongate-ovate, some individuals broader than others, teleoconch of 5-5¼ flat-sided to concave whorls, protoconch of 1½-1¾ smooth, glassy embryonic whorls, sutures sharp and wavy. Sculptured with coarse, wide-spaced axial ribs which number 8-13 on penultimate and 8-11 on body whorl, ribs occasionally sub-angulate on presutural ramp of body whorl; spiral sculpture consists of close-set spiral threads which number 6-8 on penultimate and 25-32 on body whorl, siphonal fasciole with an elevated strong cord.Outer lip thickened, aperture with 14-17 lirae, columellar callus overlapping on to body whorl, columella with 8-10 oblique lirae, siphonal notch deep. Uniformly dull white to cream in colour, some individuals lined, spotted or suffused with greenish-brown, summits of sutures with small brown spots or short lines, columellar callus and edge of aperture white, deep interior frequently brown, protoconch brown and white.

TYPE LOCALITY. None. Broome, Western Australia here designated as the type locality.

DISTRIBUTION. Apparently endemic to Western Australia. Habitat unknown.

Type specimens. Two syntypes of *C.sulcata* are in the BMNH No. 1980106, and the illustrated syntype (Fig. 87), dimensions 14.5 x 8.1 mm, is here selected as the lectotype.

Material examined. Western Australia: Roeburne, Pt.Cloates (both AMS); Swan Pt. (NMV); Broome (NMV; coll.Marrow).

The species has remained unlocalized for over a century until the recent collection of specimens in Western Australia, and to date, the species is known only from that area.

ADDITIONAL TAXONOMIC NOTES

Australian species

Nassarius albinus (Thiele, 1930)

1852. *Nassa sinusigera* A.Adams, Proc.Zool.Soc.Lond. Pt.19:100 (Catbalonga, Samar I, Philippines).
1930. *Nassa albina* Thiele, Fauna Suedw.-Australiens 5(8):584,pl.4,fig.58.

TYPE LOCALITY. Shark's Bay, S.W. Australia.

Type specimens. The syntypes of *N.albinus* are in the ZMHU. They are the unbanded form of the widely distributed *N.sinusigerus* (A.Adams,1852).

Nassarius australis (A.Adams, 1853)

1853. *Nassa australis* A.Adams, Proc.Zool.Soc.Lond. for 1851:272 (non *Buccinum australe* Menke, 1843 = *Nassarius)*.
1877. *Nassa clara* Marrat, Prop.new forms gen.*Nassa* p.7 (Hab: ?).

TYPE LOCALITY: Australia.

Type specimens. Three syntypes of *N.australis* are in the BMNH No. 197313.

The species is not endemic to Northern Australia but also occurs westward in the Indian Ocean. Due to secondary homonymy, *N.australis* has to be replaced by *N.clarus* (Marrat, 1877).

Nassarius compactus (Angas, 1865)

1850. *Nassa paupera* Gould, Proc.Boston Soc.Nat.Hist. 3:155 (Pacific Ocean).
1865. *Nassa compacta* Angas, Proc.Zool.Soc.Lond. p.154.
1974. *Nassarius(Hima)pauperus* (Gould), Cernohorsky, Venus: Jap.J.Malac. 33(2):51 (extended synonymy).

TYPE LOCALITY. St.Vincent's Gulf, Sth.Australia.

Type specimens. Four syntypes of *N.compactus* are in the BMNH No.1870.10.26.85. These are the banded form of the widely distributed Indo-Pacific *N.(Hima)pauperus* (Gould, 1850).

Nassarius comtessei (Iredale, 1929)

1832. *Buccinum conoidale* Deshayes in Belanger, Voy.Indes-Orient., Zool. p.433,pl.3,figs.6,7 (Seas of Sondé, Indian Ocean).
1929. *Niotha comtessei* Iredale, Austral.Zool. 5:349,pl.38,fig.13.

TYPE LOCALITY. Sydney Harbour, Australia.

Type specimens. The holotype of *N.comtessei* is in the AMS No. C-57847. This is an individual of *N.(Niotha)conoidalis* (Deshayes in Bélanger, 1832) (formerly *N.variegatus* A.Adams, 1852).

Arcularia grandior Verco, 1908

1908. *Arcularia grandior* Verco, Trans.R.Soc.Sth.Australia 32:344,pl.15, figs. 16,17 (off Beachport, Sth. Australia, 100-200 fathoms (183-366 m).
1959. *Fax grandior* (Verco), Cotton, Sth.Austral.Moll. p.382.

This South Australian deep water species is a member of *Fax* Iredale, family Buccinidae.

Nassarius hawleyi (Iredale, 1936)

1846. *Buccinum splendidulum* Dunker, Zeit.f.Malakozool. 3:170 (Hab:?).
1936. *Niotha hawleyi* Iredale, Rec.Austral.Mus. 19:322,pl.24,fig.11.

TYPE LOCALITY. Sydney Harbour, Australia.

Type specimens. The holotype of *N.hawleyi* is in the AMS No.C-60689. This individual is the species *N.(Niotha)splendidulus* (Dunker, 1846).

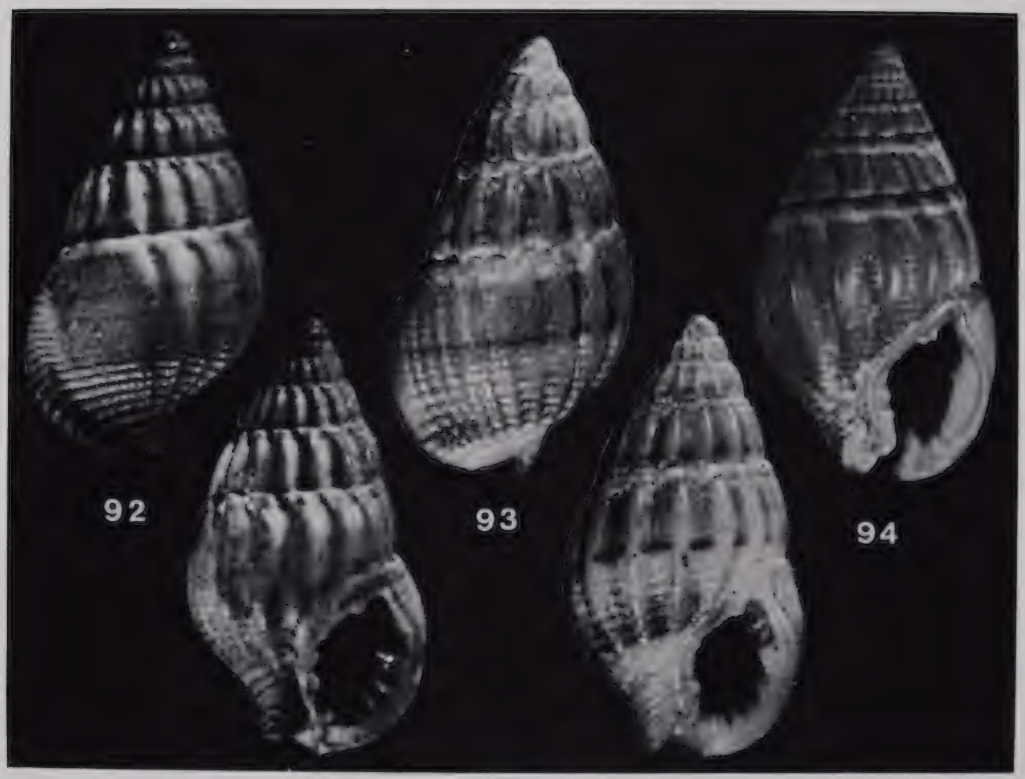
Nassarius minutulus (Thiele, 1930) (Figs. 92-94)

1907. *Nassa celebensis* Schepman, Samml.geol.Reichs-Mus.Leiden (1), 8:176, pl.11,figs.3,3a (Kajoeragi, Menado, Celebes, Quarternary of Indonesia).
1930. *Nassa minutula* Thiele, Fauna Suedw.-Australiens 5(8):584,pl.4,fig.59.
1977. *Nassarius(Niotha)marshallensis* Ladd, Geol.Surv.Prof.Pap. 535:55,pl.18,figs.6,7 (drill-holes on Enewetok, L. Miocene of Marshall Is).

TYPE LOCALITY. Shark's Bay, S.W.Australia.

Type specimens. The holotype of *N.celebensis* is in the Rijksmuseum van Geologie &Mineralogie, Leiden, No.RGM-102.440, dimensions 6.8 x 3.7 mm (Fig. 92). Syntypes of *N.minutulus* are in the ZMHU, and the illustrated syntype (Fig. 93), length 6.3 mm, is here selected as the lectotype. The holotype of *N.marshallensis* is in the USNM No.175063, dimensions 8.1 x 4.2 mm (fig. 94).

The species is not endemic to Western Australia but is synonymous with the Indo-West Pacific *N.celebensis* (Schepman, 1907).



Figs. 92-94. *Nassarius celebensis* (Schepman). 92. Holotype RGML No. 102.440; 6.8 mm. 93. Lectotype of *Nassa minutula* Thiele, ZMHU; 6.3 mm. 94. Holotype of *Nassarius marshallensis* Ladd, USNM No. 175063; 8.1 mm.

Nassarius optimus (Sowerby, 1903)

1903. *Nassa optima* Sowerby, J.Malac. 10:73,pl.5,figs.1,2.

TYPE LOCALITY. N.W. Australia.

Type specimens. The holotype of *N.optimus* is in the BMNH No. 1903.11.5.4. The species is not endemic to Northern Australia but has a restricted distribution ranging from New Caledonia to the Philippines and Indonesia.

Nassarius pilatus (Hedley, 1915)

1915. *Arcularia pilata* Hedley, Proc.Linn.Soc.N.S.W. 39(4):739,pl.84,fig.80.

TYPE LOCALITY. Darnley I, Torres Str., Nth. Australia, 12 fathoms (22 m).

Type specimens. Three syntypes of *N.pilatus* are in the AMS No. C-8071. These are the species *N.(Hima)pauperus* (Gould, 1850).

Cyllene striata A.Adams, 1851

1850. *Cyllene pulchella* Adams & Reeve, Zool. Voy.H.M.S.''Samarang'', Pt.2:33, pl.10,fig.11 (Borneo, Indonesia).
1851. *Cyllene striata* A.Adams,Proc.Zool.Soc.Lond. Pt.18:205.

TYPE LOCALITY. Albrokkas Is (= Albrolhos Is), W.Australia.

Type specimens. Three syntypes of *C.striata* are in the BMNH (no number). These specimens are synonymous with the tropical Indo-Pacific *C.pulchella* Adams & Reeve,1850.

Nassarius torresianus (Hedley,1915)

1901. *Nassa(Alectryon)idyllia* Melvill & Standen,Proc.Zool.Soc.Lond. p.410, pl.23,fig.12 (Gulf of Oman).
1915. *Arcularia caelata* var. *torresiana* Hedley, Proc.Linn.Soc.N.S.W. 39: 734,pl.83,fig. 76.

TYPE LOCALITY. Torres Strait, Nth.Australia, 12 fathoms (22 m).

Type specimens. Two syntypes of *N.torresianus* are in the AMS No. C-8072. These are individuals of *N.idyllius* (Melvill & Standen,1901) a species frequently cited under the homonymous name ''*Nassa ovoidea* Schepman,1911'' (non Locard,1886).

New Zealand species

Nassa (Tritiaria) cingulata Hutton,1885

1885. *Nassa(Tritiaria)cingulata* Hutton, Trans.Proc.N.Z.Inst. 17:327 (Greta, Canterbury, Pliocene of New Zealand); 1926 Finlay, Trans.Proc.N.Z. Inst. 56:239 (as *Zephos*).

This New Zealand species belongs in the Buccinidae and is the type species of *Zephos* Finlay,1926. The species is now assigned to *Cominella (Eucominia)*.

Hebra corticata (A.Adams,1852)

1852. *Nassa corticata* A.Adams,Proc.Zool.Soc.Lond. p.98.

TYPE LOCALITY. New Zealand = error.

Type specimens. Three syntypes of *N.corticata* are in the BMNH No.197326. The locality indication is incorrect and the species lives in the tropical Indo-West Pacific region.

Alectrion (Tritia) latecostata Suter,1917

1917. *Alectrion(Tritia)latecostata* Suter, N.Z.Geol.Surv.Palaeont.Bull. 5:36,pl.1,fig.8 (Pukeuri near Oamaru, New Zealand, L.Miocene).
1966. *Nassarius latecostatus* (Suter), Fleming, N.Z.Dept.Sci.Ind.Res.Bull. No. 173:63.

The species has been described from a juvenile individual which lacks any diagnostic features which would aid in associating it with the Nassariidae. It does resemble juvenile specimens of some Miocene buccinid species, particularly those of *Austrofusus* Kobelt. The species should be tentatively retained in the Buccinidae.

Radulphus necopinatus Finlay,1930

1855. *Cominella quoyana* A.Adams,Proc.Zool.Soc.Lond. Pt.22:313 (New Zealand).
1930. *Radulphus necopinatus* Finlay, Trans.Proc.N.Z.Inst. 61:236 (Cape Maria van Diemen, North I of New Zealand).

This species has been originally compared to the New South Wales *Cyllene lactea* Adams & Angas and *C.royana* (Iredale), but it is in fact the Cape Maria van Diemen form of *Cominella(Josepha)quoyana* A.Adams,1855, family Buccinidae.

Nassarius novaezelandiae (Reeve,1854)

1854. *Nassa novaezelandiae* Reeve,Conch.Icon. 8:pl.28,sp.186a,b.

TYPE LOCALITY. New Zealand = error.

Type specimens. Two syntypes of *N.novaezelandiae* are in the BMNH (no number). The locality indication is an error and the species lives in the tropical Indo-West Pacific region.

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